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The Report of
The Citizens' Committee
on the Finances of
Pennsylvania
to
HON. GIFFORD PINCHOT

PART I.

Highway Department
Public Printing and Binding
Compensation
Game and Fish
Rentals for Public Offices


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Highway Department
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The Report of
The Citizens' Committee on the
Finances of Pennsylvania

APPOINTED BY
HONORABLE GIFFORD PINCHOT
Governor-elect of Pennsylvania

254434

Honorable Gifford Pinchot,
Governor-elect of Pennsylvania,
Milford, Pa.

Sir:

This Committee appointed by you in June of this year begs to submit its report herewith. The duties of the Committee as assigned by you were:

(1) To secure and consider the best available figures showing the money income of the state from all sources during the current biennial fiscal period; to secure and consider the best available figures showing the probable total revenue from all existing sources during the next biennial fiscal period; and to make needful recommendations as to sources of revenue and methods of taxation, with the object of avoiding additional or unnecessary burdens upon the people of the state.

(2) To inquire into the expenditures of all monies appropriated for any purpose by the legislative session of 1921; to consider the necessity for such expenditures; to estimate the probable deficits, where such exist; and to make needful recommendations for the more economical and effective expenditure of the state's funds.

(3) To examine into the present methods of appropriating and expending the money received by the state from all sources; to make recommendations as to the fiscal policies of the state; and to propose a form of budget that will assist in preventing the appropriation of monies in excess of the probable revenue.

I. The Income of the State.

Auditor-General Lewis conservatively estimates the revenues of this Commonwealth for the next legislative biennium at \$112,000,000, on the basis of the present laws exclusive of certain ear-marked funds. The receipts from each source for the period indicated are given in the table on page XXIII, Appendix B.

Mr. Lewis has also under preparation a number of statutes looking toward improving the administration of the taxation laws as they now stand. Your Committee believes that a complete overhauling of our taxation system is necessary to make it at once equitable as between classes of taxpayers and adequate to the needs of the state. Studies for this purpose have been outlined but have not been completed at the time of making this report. The Committee particularly endorses in principle the bill drawn by

Mr. Lewis creating a Revenue Commissioner to be appointed by the Governor. The Governor should have direct supervision over the income side of his budget if he is to be held responsible as he should be for the expenditure side. Your Committee believes that more of the services of the state can be made self-sustaining and suggestions toward this end have been made for your consideration.

II. The Present Appropriation Liability.

The last legislature appropriated a total of about \$137,500,000. This amount Governor Sproul cut down by veto to \$118,000,000. Of this \$118,000,000 appropriated \$52,500,000 was unexpended as of November 30, 1922. To this \$52,500,000 must be added \$5,700,000 of unexpended balances of appropriations by previous legislatures which will be drawn upon. In addition, your budget estimates show total requests to meet deficits of about \$7,600,000, a total of \$65,800,000. To meet this liability there will be a cash income up to June 1, 1922, of about \$35,000,000. This leaves a total appropriation liability unprovided for and in excess of income of about \$30,800,000. Your Committee believes, however, that these deficit requests totaling \$7,600,000 can be reduced by you to about \$6,000,000.

There are a few appropriations that will not be called for at all, such as the appropriation of \$285,000 for a constitutional convention; but these items cannot total as much as \$1,000,000. Subtracting the \$1,600,000 to be saved from deficit requests and the \$1,000,000 in appropriations that will not be drawn upon from the \$30,800,000 of appropriation liability leaves a total appropriation liability over income by June 1, 1923, of \$28,200,000. Subtracting this \$28,200,000 from the \$112,000,000 estimated income for the next biennium leaves \$83,800,000 clear for expenditures in the next biennium. We believe by the most rigid economy, starting at once, and by the lapsing of every unencumbered appropriation not needed for absolutely essential expenditures in the next biennium, something over \$3,000,000 more can be saved from existing appropriations. In the absence of detailed estimates by Auditor-General Lewis your Committee believes, from information in its possession, that revenues for the next biennium may total \$3,000,000 more than Mr. Lewis conservatively estimates.

This means that at the most you can count on not over \$90,000,000

net for expenditures from existing revenues from June 1, 1923, to May 31, 1925. And this only provided that the fiscal control outlined below shall be adopted and that 10 percent be set aside monthly from June 1st as a reserve from each appropriation not to be spent until such time as the income of the state is assured.

III. The Cash Deficit in the Treasury.

The state has not been able to pay its warrants promptly. There were in the Treasury on December 29, 1922, \$8,768,659.35 in warrants and general fund settlements due and unpaid. The total amount of warrants due and unpaid at the end of each month since last November was as follows:*

STATE TREASURY DEPARTMENT.

GENERAL FUND SETTLEMENTS AND WARRANTS ON HAND AT CLOSE OF BUSINESS.

BY MONTHS, NOVEMBER, 1921 TO DECEMBER, 1922

November 30, 1921.....	\$12,914,606.74
December 31, 1921.....	11,408,925.68
January 31, 1922.....	12,213,664.96
February 28, 1922.....	17,932,434.34
March 31, 1922.....	13,751,625.07
April 30, 1922.....	13,492,752.16
May 31, 1922.....	12,376,461.13
June 30, 1922.....	12,757,236.51
July 31, 1922.....	12,511,847.22
August 31, 1922.....	18,384,219.46
September 29, 1922.....	17,003,329.83
October 31, 1922.....	14,118,388.23
November 29, 1922.....	8,492,946.04
December 31, 1922.....	8,768,659.35

This accumulation of unpaid obligations does more than impair the credit and the good faith of the Commonwealth of Pennsylvania. It means that salaries and wages may be imperilled. Individuals and firms have often suffered heavy losses because monies properly due were unavailable. It means heavier costs to the state. Schools and other institutions have had to borrow money to meet the demands upon them and to pay interest charges on money thus borrowed. Institutions have been unable to pay cash, thus making them undesirable customers with added costs to the taxpayers. At the end of business in December of 1922, warrants due school districts since August 1st totaled \$4,740,000.

Warrants due and unpaid on December 31, 1922, were classified as follows:

*Furnished by the State Treasurer.

STATE TREASURY DEPARTMENT.

GENERAL FUND SETTLEMENTS AND WARRANTS ON HAND AT CLOSE OF
BUSINESS, DECEMBER 29, 1922.

Adjutant-General's Warrants.....	\$12,216.12
Forestry Department Warrants.....	53,812.94
Armory Board.....	32,264.55
Agricultural Department.....	13,876.92
Auditor-General's Department.....	4,005.99
Board of Motion Picture Censors.....	437.08
Executive Department.....	500.00
Forestry Department.....	29,027.02
Health Department.....	73,094.10
Insurance Department.....	1,664.18
Internal Affairs Department.....	82.50
Labor and Industry Department.....	4,209.05
Library and Museum.....	3,382.72
Mines Department.....	299.61
Printing and Binding Department.....	10,124.88
Public Grounds and Buildings Department.....	22,844.29
Public Instruction Department.....	18,358.52
Vocational Education.....	6,482.80
Normal Schools.....	344,490.38
Public Service Commission.....	7,710.49
Public Welfare Commission.....	603.78
State Police Department, Fire Protection.....	2,000.00
State Reporter.....	250.00
Water Supply Commission.....	894.57
State Retirement Board (Deficiency).....	2,142,405.14
Miscellaneous Boards.....	1,784.08
Commissions.....	33,348.73
Miscellaneous.....	60,241.00
Mothers' Assistance Fund.....	9,643.59
Insane Hospitals.....	172,047.64
Hospitals.....	141,590.39
State Hospitals.....	4,683.17
Homes.....	18,488.97
Training Schools.....	210,042.60
Societies and Associations.....	443.69
Institutions.....	64,941.81
Judiciary.....	2,031.81
Associate Judges.....	2,164.40
State Highway Department:	
Reimbursements.....	\$498,205.73
Summary Requisitions.....	9,988.56
State Rewards.....	13,586.02
	<hr/>
	521,780.31
School Warrants:	
Edmonds Bill, due August 1, 1922.....	4,740,389.53
	<hr/>
Grand Total.....	\$8,768,659.35

Classes of warrants due on other months are given on pages XIII to XXII, inclusive, Appendix A.

This means that the state has not been meeting its obligations as they came due in very substantial amounts.

Your Committee has not deemed it necessary to report at length upon the evils of this system of impairing the credit and good name of the state. The evil springs from the want of a budget system and of proper means of fiscal control. The Committee had no compulsory powers and hence could not have made an investigation of great detail in these matters even had it desired so to do. Such an investigation can and should be made only by an official body. The Committee believes that the public will fully appreciate the evils arising from the system and has therefore addressed itself to the constructive side of the subject. Expenditures must be cut down to meet the income. If this is not done, and done promptly, obligations of the state cannot be met when due. To wipe out part of this deficit in this biennium and part in the next is only to continue cash deficits throughout the next biennium.

IV. Adequate Fiscal Control.

Your Committee believes the following to be the requisites to a proper system of fiscal control for the State of Pennsylvania. This control should apply to expenditures from ear-marked or special funds as well as to expenditures from the general fund.

(1) The Budget

There can be no proper consideration by the executive or by the legislature of appropriations except as appropriations and expenditures for all items shall be before the executive and then before the legislature. At your request the chairman of your Committee with the aid of Charles Reitell and H. A. Barth has drawn up a set of estimate blanks. Those have been submitted to the Departments and you are now preparing your budget from the data thus secured.

(2) A Uniform System of Accounts

To have a common basis in fact as between departments and for the expenditures and income of the state as a whole, a uniform system of accounts is necessary. Uniform accounts are prerequisite to fiscal control both in plan and in appraisal of results. Charles Reitell for the Committee has made a thorough analysis of the accounting records and methods now in use in each of the state Departments, and his report and a plan for uniform state accounts has been presented for your consideration, and has

received in general your approval. In this work Horace P. Griffith & Co., certified public accountants, and Griffenhagen & Associates were also of assistance.

(3) Pay As You Go

After these steps are taken, there can be no fiscal control that will keep the Governor advised as to current and future expenditures unless proposed department expenditures are submitted periodically to the Governor in advance for approval. Each spending agency should make requisitions to the Governor in advance of commitments for expenditures. These estimates should be made by months in advance for the entire appropriation period, and then should be readjusted from month to month, as experience and monies available indicate. The corresponding income available can then be estimated by months.

With these requests and with details as to income before the Governor, expenditures can be so planned as to have monies available to meet warrants as they come due. Unless this procedure is rigorously followed the deficit evil cannot be abated. For the Committee, H. A. Barth has made a careful study of such procedure in other states and in the nation. And a set of forms accomplishing this end has been submitted to you and have had your approval. This procedure has nothing to do directly with auditing expenditures to see that the law has been complied with.

(4) Reorganization of the State Government

Reorganization is essential to a sound system of fiscal control. Financial savings from reorganization have been overstated. Reorganization will not save substantial sums of money. But reorganization enables the taxpayers to get their money's worth, as they do not now. Reorganization on the principle of departmental responsibility will also make it possible to get and keep the accounting skill necessary for accurate and uniform records.

Allen F. Saunders for the Committee has assembled the plans and achievements of reorganization in other states and has digested these for your use. A plan for reorganization in Pennsylvania has been prepared and presented to you for your consideration.

(5) An Administrative Code

The readjustment most essential is that within departments, not between departments and other spending agencies. Moreover,

this readjustment should be a continuing process to meet changing needs and functions. There is need, therefore, for an up-to-date state administrative code. Powers should be granted in this code to departments and not to Bureaus or Divisions. In this way only can that adaptability essential to economy and responsibility be secured. To further this end, Mr. Saunders has also started a reference digest to the statutes affecting the powers of the departments to accompany your reorganization plans. And others are now at work preparing a complete administrative code for Pennsylvania for your consideration.

V. Fiscal Organization.

Your Committee believes the following to be among the essentials to a sound fiscal organization in this state:

(1) A Responsible Financial Officer

This official should be responsible under your direction for securing the information necessary to fiscal control and for assuming direct responsibility for the administration of the state's finances and the preparation of a budget. He should have power to examine all records, books and accounts. Associated with him should be a *director of accounts* and a *director of standards and supplies*. Plans for the work of each of these officers in detail have been submitted for your consideration. The Committee particularly endorses the plan for a Bureau of Standards and Purchase outlined in the report by Dr. Henry C. Wright. (Part III.) The Committee believes that the supervision of printing and binding, and the purchasing and stores work of the Superintendent of Public Grounds and Buildings, should be transferred to this director of purchases and standards.

(2) Reorganization in Legislative Procedure

An examination of the present practices in making appropriations by the Legislature reveals a need for a change in certain legislative traditions and practices. One prerequisite to good budget legislation is the practice under which all bills appropriating monies or providing for new or changing existing sources of revenue shall be referred to a single appropriation committee in each house so that all prospective appropriations shall be considered in the light of total income and expenditures.

VI. Standards of Public Employment.

There is need for higher standards of public service on the part of some of the employees of the Commonwealth. This is primarily a problem of morale. Securing morale in public service is not particularly different from securing morale in private service. Your long experience in making just this contribution to public service offers in itself assurance that needful regulations will be issued common to all and that high standards of public service will be set and maintained. Essential to this is a standardization of state occupations and salaries. Albert Smith Faught has made for the Committee a detailed analysis of the present positions under the Commonwealth and their salaries and this study is available for your use. There is also need for eliminating ruthlessly from state payrolls all sinecures and unnecessary positions and such employees as put party service above public service, or who work part time for full pay.

VII. The Appropriations of 1921.

You asked the Committee to consider the necessities for the moneys appropriated by the Legislature in 1921. Within the time available, the Committee could not itself hold the large number of public hearings essential to a careful determination of this question. To serve this end more thoroughly and at the same time to get data essential to judgments for your budget the Committee decided that it was advisable to have special surveys made of the spending policies of each of the larger departments through one or more experts peculiarly qualified in each respective field.

Inasmuch as there are many important phases of public policy entering into each of these spending policies, it was deemed advisable to associate with each of the experts an advisory committee to add their judgments to the matter at hand. These committees are named in each of the surveys.

These surveys cover the following subjects:

I. Incomplete Reports.

(1) The Militia and the State Police

General Asher Miner, a member of the Committee, made as expert a special report on the expenditures for the State Militia and the State Constabulary. Inasmuch as his report was lengthy

and inasmuch as the General left for a visit abroad before he could personally discuss the report with the Committee, the report has been put before you for your consideration.

(2) The Attorney-General and the Judiciary

T. Henry Walnut made an inquiry for the Committee into the expenditures for the Judiciary and the Attorney-General. His recommendations were made orally and have been before you in the preparation of your budget.

(3) Housing Legislation

Bernard J. Newman made a survey of the activities and duties of the Housing Division in the Department of Health. The report was not in final form for publication at the time this report went to press.

(4) Public Interests and Deposits

Frederick P. Gruenberg has made a survey of the present methods of getting interest on the bank deposits of the money of the commonwealth. He has also submitted for your consideration a statute governing the matter. This statute was not in form for final action before this report went to press.

II. Published Reports.

The surveys that the Committee ordered published are as follows. These surveys, first separately printed, have been bound in three parts.

PART I.

A SURVEY OF THE FISCAL POLICIES OF THE STATE HIGHWAY DEPARTMENT OF PENNSYLVANIA

By WILLIAM H. CONNELL

A SURVEY OF THE FISCAL POLICIES OF THE STATE DEPARTMENT OF PUBLIC PRINTING AND BINDING OF PENNSYLVANIA

By JOHN H. WILLIAMS

A SURVEY OF THE FISCAL POLICIES OF THE DEPARTMENT OF WORKMEN'S COMPENSATION OF THE STATE OF PENNSYLVANIA

By JOHN B. ANDREWS AND MILES M. DAWSON

THE POLICIES OF THE COMMONWEALTH AS TO RENTALS AND BUILDING

ALBERT J. LOGAN

EDWIN KESTER

THOMAS W. HULME

JOSEPH F. KUNTZ

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A SURVEY OF THE FISCAL POLICIES OF THE PENNSYLVANIA
DEPARTMENTS OF GAME AND FISH

By FREDERIC C. WALCOTT

ASSISTED BY RAY B. HOLLAND AND JOHN W. TITCOMB

PART II.

A SURVEY OF THE POLICIES OF THE STATE OF PENNSYLVANIA
IN THE FIELD OF EDUCATION

By HARLAN UPDEGRAFF AND LEROY A. KING

PART III.

A SURVEY OF THE FISCAL POLICIES OF THE STATE OF
PENNSYLVANIA AS RELATED TO CHARITABLE
INSTITUTIONS AND HOSPITALS

By DR. HENRY C. WRIGHT

A SURVEY OF THE FISCAL POLICIES OF THE TUBERCULOSIS
HOSPITALS AND SANATORIA OF PENNSYLVANIA

By DR. H. A. PATTISON

ASSISTED BY DR. EDGAR T. SHIELDS

A FINANCIAL SURVEY OF THE STATE PENAL AND CORRECTIONAL
INSTITUTIONS IN PENNSYLVANIA

By LOUIS N. ROBINSON

A SURVEY OF THE FISCAL POLICIES OF THE STATE SUBSIDIES
OF PRIVATE CHARITABLE INSTITUTIONS OF PENNSYLVANIA

By KENNETH L. M. PRAY

Respectfully submitted,

The Citizens' Committee on the Finances of
Pennsylvania.

Clyde L. King, Chairman

Hon. D. Edward Long

Charles J. Rhoads, Treasurer

General Asher Miner

Mrs. Walter King Sharpe, Secretary

Mr. T. D. Stiles

Hon. Franklin Spencer Edmonds

Mrs. William Thaw, Jr.

Hon. John S. Fisher

Mrs. Barclay H. Warburton

Mr. Leonard P. Fox

Mr. Frank P. Willits

Mr. Allen W. Hagenbach

Hon. George W. Woodruff

Mr. Alba B. Johnson

Hon. George Woodward

Mrs. Mary Flinn Lawrence

Mr. Paul D. Wright

January 5, 1923.

Appendix A.

GENERAL FUND SETTLEMENTS AND WARRANTS ON HAND IN THE STATE TREASURY DEPARTMENT.

BY MONTHS, FEBRUARY TO NOVEMBER, 1922.

February 28, 1922.

Agriculture Department.....	\$15,407.99
Agricultural Associations.....	68,660.59
Attorney-General's Department.....	17,746.72
Auditor-General's Department.....	1,066.32
Fisheries Department.....	2,515.29
Forestry Department.....	37,938.39
Health Department.....	101,770.82
Highway Department, as follows:	
Reimbursements.....	\$1,095,102.50
Summary Requisitions.....	265,321.96
State Reward.....	236,602.55
	<hr/>
	1,597,027.01

Insurance Department.....	536.58
Internal Affairs.....	869.79
Labor and Industry Department.....	12,464.07
Library and Museum.....	3,618.78
Printing and Binding Department.....	61,201.58
Public Grounds and Buildings.....	222,068.36
Public Instruction Department.....	26,516.72
Public Service Commission.....	16,590.38
Public Welfare Department.....	3,479.02
State Department.....	45.50
State Police Department.....	36,898.91
Water Supply Commission.....	124,299.05
Miscellaneous Settlements.....	41,505.16
Boards and Commissions.....	49,715.71
Superior and Supreme Courts.....	2,015.06
Homes.....	79,435.21
Hospitals.....	611,285.10
State Hospitals.....	144,379.13
Insane Hospitals.....	482,163.85
Institutions.....	626,954.94
Societies and Associations.....	15,936.57
Training Schools.....	499,411.13
State Retirement Board.....	1,106,586.80
Foreign Insurance Settlements.....	187,139.25
Common Schools, 1919 Appropriation.....	1,874,739.41
Normal Schools.....	491,141.10
Auditor-General's Warrants.....	337,407.05
Adjutant-General's Warrants.....	42,137.43
Forestry Department Warrants.....	44,948.34
Retirements Board Warrants.....	2,087.80
	<hr/>
	\$8,969,710.91

Amounts due Schools, not yet certified to this department:

Common Schools, 1919 App. due July 4, 1921	\$1,572,723.43
High Schools, 1919 App. due July 4, 1921	370,000.00
Edmonds Bill, 1921 App. due Feb. 1, 1922	7,000,000.00
	<hr/>
	8,942,723.43

Grand Total..... \$17,932,434.34

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March 31, 1922.

Adjutant-General's Department.....	\$6,615.25	
Armory Board.....	39,066.12	
Agriculture Department.....	9,456.57	
Attorney-General's Department.....	9,456.57	
Auditor-General's Department.....	465.35	
Forestry Department.....	19,636.54	
Health Department.....	111,289.32	
Internal Affairs Department.....	5,468.85	
Labor and Industry Department.....	3,169.99	
Library and Museum.....	1,511.60	
Mines Department.....	12,299.74	
Printing and Binding Department.....	9,287.53	
Public Grounds and Buildings Department.....	75,866.82	
Public Instruction Department.....	61,776.68	
State Normal Schools.....	412,493.63	
Vocational Education.....	52,978.28	
Public Service Commission.....	49,096.12	
State Department.....	310.33	
State Police Department.....	3,245.79	
State Reporter.....	345.00	
Treasury Department.....	1,570.56	
Water Supply Commission.....	77,422.62	
Boards.....	1,402.20	
Commissions.....	20,802.47	
State Retirement Board.....	1,106,586.80	
Miscellaneous.....	73,264.79	
Refunds.....	544.63	
Mothers' Assistance Fund.....	1,850.64	
Insane Hospitals.....	595,434.10	
State Hospitals.....	45,980.38	
Hospitals.....	450,486.02	
Homes.....	55,237.43	
Training Schools.....	341,362.10	
Societies.....	137,003.58	
Institutions.....	249,747.66	
Supreme and Superior Courts.....	1,282.82	
Senate.....	322.00	
Censors of Motion Pictures.....	374.59	
Agricultural Associations.....	68,173.84	
State Highway Department:		
Reimbursements.....	\$934,426.15	
Summary Requisitions.....	78,405.86	
State Reward.....	236,602.55	
Due Bond Rd. from Gen. Fund.....	306,500.34	
		1,555,934.90
School Warrants (Edmonds Bill).....	248,959.97	
Forestry Department Warrants.....	44,948.34	
Adjutant-General's Warrants.....	26,240.58	
Executive Department Warrants.....	8,106.06	
		\$5,988,628.24
Amounts due Schools, not yet certified to Department:		
Common Schools, 1919 Appro., due July 4, 1921	\$971,916.25	
Vocational Schools, due July 4, 1921.....	40,040.55	
Edmonds Bill, due February 1, 1922.....	6,751,040.03	
		7,762,996.83
Total Amount Due.....		\$13,751,625.07

April 30, 1922.

Adjutant-General's Warrants.....	\$61,851.14
Auditor-General's Warrants.....	8,627.19
Forestry Department's Warrants.....	44,948.34
Armory Board.....	1,912.19
Attorney-General.....	571.45
Agriculture Department.....	460.00
Auditor-General's Department.....	821.09
Executive Department.....	500.00
Treasury Department.....	20,556.38
Health Department.....	85,416.65
Internal Affairs.....	50.00
Labor and Industry Department.....	8,451.02
Library and Museum.....	2,707.42
Mines.....	1,226.50
Printing and Binding.....	55,721.57
Public Grounds and Buildings.....	102,714.38
Public Instruction.....	18,065.61
State Normal Schools.....	432,542.98
Public Service Commission.....	45,108.88
State Police Department.....	17,551.63
Treasury Department.....	82.63
Water Supply Commission.....	50,565.30
Commissions.....	58,818.53
Retirement Board.....	1,106,586.80
Miscellaneous.....	76,131.12
Refunds.....	126.25
Mothers' Assistance.....	11,132.49
Insane Hospitals.....	627,896.80
Hospitals.....	497,172.81
State Hospitals.....	62,536.23
Homes.....	63,222.13
Training Schools.....	501,194.38
Societies and Associations.....	21,930.79
Institutions.....	456,268.69
Judiciary.....	2,121.65
Public Welfare Commission.....	256.71
Agricultural Association.....	21,306.41
Foreign Fire Insurance.....	137,185.94

State Highway Department:

Reimbursements.....	\$845,236.63
Summary Requisition.....	17,197.83
State Reward.....	175,976.93
Due Bond Road Fund.....	152,199.03
	<hr/>
	1,190,610.42

School Warrants:

Common Schools, due July 4, 1922.....	\$992,297.67
High Schools, due July 4, 1921.....	540,000
Edmonds Bill, due Feb. 1, 1921.....	640,830.35
	<hr/>
	1,633,668.02
	<hr/>
	\$7,428,618.52

Amounts due Schools not yet certified to Department:

Edmonds Bill, due Feb. 1, 1922.....	6,064,133.64
	<hr/>
Total Amount Due.....	\$13,492,752.16

May 31, 1922.

Adjutant-General's Warrants	\$55,928.30
Auditor-General's Warrants	10,000.00
House of Representatives	1,275.00
Adjutant-General	17,814.72
Armory Board	19,182.31
Agriculture Department	29,167.01
Auditor-General	28,733.57
Banking Department	1,925.00
Board of Censors	2,965.83
Executive Department	2,011.64
Fisheries Department	350.00
Forestry Department	73,090.15
Health Department	88,610.98
Insurance Department	4,465.73
Internal Affairs	27,147.86
Labor and Industry Department	41,102.91
Legislative Reference Bureau	1,402.50
Library and Museum	4,061.49
Mines Department	11,372.55
Printing and Binding Department	19,493.41
Public Grounds and Buildings	139,971.45
Public Instruction	62,193.94
Vocational Education	28,248.44
Normal Schools	425,816.49
Public Service Commission	56,688.03
Public Welfare Commission	2,679.14
State Department	8,022.48
State Police Department	11,531.99
State Reporter	1,739.20
Treasury Department	10,197.00
Water Supply Commission	53,794.26
State Retirement Board (Deficiency)	1,106,585.80
State Retirement Board Salary and Expense Fund	1,562.50
Boards	7,601.81
Commissions	31,620.58
Pensions and Gratuities	2,748.21
Foreign Fire Insurance Tax	137,185.94
Miscellaneous	50,102.51
Refunds	162.24
Mothers' Assistance	6,632.40
Insane Hospitals	497,580.40
Hospitals	399,668.48
State Hospitals	35,524.79
Homes	24,778.00
Training Schools	460,611.58
Societies	8,909.29
Institutions	282,526.73
Judiciary	2,003.99
State Highway Department:	
Reimbursements	\$818,805.80
Summary Requisitions	24,452.78
State Reward	185,413.67
Due Bond Road Fund	152,199.03
School Warrants:	
Common Schools, due July 4, 1921	\$791,916.25
Edmonds Bill, due Feb. 1, 1922	2,198,892.98
	<hr/>
	1,180,871.28
	<hr/>
	2,990,809.23
	<hr/>
	\$8,468,469.14
Amount due schools not yet certified to the Department:	
Edmonds Bill, due February 1, 1922	3,907,991.99
Total	<hr/>
	\$12,376,461.13

XVII

June 30, 1922.

Adjutant-General's Warrants	\$42,243.92
Senate	1,000.00
Adjutant-General	11,943.67
Armory Board	53,558.78
Agriculture Department	13,460.30
Attorney-General	568.71
Auditor-General	576.89
Board of Censors	561.20
Fisheries Department	925.42
Forestry Department	94,504.07
Health Department	60,977.65
Insurance Department	575.36
Internal Affairs	10,287.43
Labor and Industry Department	32,155.11
Library and Museum	2,157.65
Mines Department	18,321.25
Printing and Binding Department	104,658.40
Public Grounds and Buildings	173,801.52
Public Instruction	27,634.39
Vocational Education	18,470.03
Normal Schools	470,678.83
Public Service Commission	45,953.62
Public Welfare Commission	1,085.31
State Police Department	22,680.02
State Reporter	250.00
Treasury Department	2,348.45
Water Supply Commission	49,934.14
State Retirement Board (Deficiency)	1,106,585.80
Boards	8,467.66
Commissions	78,948.61
Foreign Fire Insurance Tax	137,185.94
Miscellaneous Accounts	20,342.17
Refunds	2,727.50
Mothers' Assistance	15,497.01
Insane Hospitals	635,321.41
Hospitals	419,756.27
State Hospitals	50,737.16
Homes	89,095.30
Training Schools	711,600.80
Societies	22,621.79
Institutions	254,876.88
Judiciary	9,273.63
Amount due Prison Labor Manufacturing Fund	50,000.00

State Highway Department:

Reimbursements	\$854,463.31
Summary Requisitions	30,994.63
State Rewards	141,273.05
Due Bond Road Fund	152,199.03
	<hr/>
	1,178,930.02

School Warrants:

Common Schools, due July 4, 1921	\$791,916.25
Edmonds Bill, due Feb. 1, 1921	1,132,134.38
	<hr/>
	1,924,050.63

\$7,977,330.70

Amount due schools not yet certified to the Department:

Edmonds Bill, due February 1, 1922	4,779,905.81
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Grand Total	<hr/> \$12,757,236.51
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XVIII

July 31, 1922.

Adjutant-General's Warrants	\$1,423.78	
Senate of Pennsylvania.....	364.00	
House of Representatives.....	1,275.00	
Adjutant-General.....	16,672.52	
Armory Board.....	19,521.65	
Agriculture Department.....	38,692.71	
Attorney-General's Department.....	5,367.79	
Auditor-General's Department.....	27,619.62	
Banking Department.....	2,125.00	
Board of Censors.....	2,965.83	
Executive Department.....	2,052.54	
Fisheries Department.....	680.89	
Forestry Department.....	121,827.02	
Health Department.....	119,335.71	
Insurance Department.....	5,232.07	
Internal Affairs.....	22,709.76	
Labor and Industry Department.....	59,770.00	
Legislative Reference Bureau.....	1,402.50	
Library and Museum.....	5,283.80	
Mines Department.....	32,738.74	
Printing and Binding Department.....	82,163.30	
Public Grounds and Buildings.....	199,429.79	
Public Instruction.....	90,548.67	
Vocational Education.....	8,389.48	
Normal Schools.....	431,867.70	
Public Service Commission.....	60,855.12	
Public Welfare Commission.....	3,265.63	
State Department.....	3,423.26	
State Police.....	4,275.70	
State Reporter.....	450.00	
Treasury Department.....	6,982.04	
Water Supply Commission.....	57,486.39	
State Retirement Board (Deficiency).....	1,106,585.80	
State Retirement Board.....	1,595.00	
Boards.....	8,929.96	
Commissions.....	92,683.85	
Foreign Fire Insurance Tax.....	137,185.94	
Miscellaneous Accounts.....	38,651.54	
Refunds.....	466.52	
Mothers' Assistance.....	28,418.19	
Insane Hospitals.....	641,067.25	
Hospitals.....	631,430.52	
State Hospitals.....	24,953.28	
Homes.....	92,772.01	
Training Schools.....	812,444.97	
Societies.....	17,726.57	
Institutions.....	476,594.88	
Judiciary.....	3,994.67	
State Highway Department:		
Reimbursements.....	\$871,048.94	
Summary Requisitions.....	33,243.33	
State Reward.....	128,324.43	
Due Bond Road Fund.....	152,199.03	
		1,184,815.73
School Warrants:		
Common Schools, due July 4, 1921.....	\$591,916.25	
Edmonds Bill, due Feb. 1, 1922.....	5,139,661.08	
High Schools and Transportation of Pupils...	43,755.20	
		5,775,332.53
Grand Total.....		\$12,511,847.22

August 31, 1922.

Adjutant-General's Warrants	\$22,813.05
Senate of Pennsylvania	378.00
House of Representatives	1,350.00
Adjutant-General	16,587.21
Armory Board	15,871.76
Agriculture Department	22,473.13
Attorney-General's Department	4,463.29
Auditor-General's Department	13,727.72
Banking Department	2,125.00
Board of Censors	3,225.48
Executive Department	2,006.64
Fisheries Department	359.00
Forestry Department	107,317.84
Health Department	112,704.07
Insurance Department	4,284.40
Internal Affairs	24,988.96
Labor and Industry Department	57,887.97
Legislative Reference Bureau	1,402.50
Library and Museum	6,129.86
Mines Department	11,372.47
Printing and Binding Department	36,732.11
Public Grounds and Buildings	140,868.56
Public Instruction	81,691.07
Vocational Education	14,064.85
Normal Schools	438,423.86
Public Service Commission	59,589.72
Public Welfare Commission	5,884.58
State Department	3,448.84
State Police	6,411.42
State Reporter	1,700.00
Treasury Department	6,003.87
Water Supply Commission	65,860.82
State Retirement Board (Deficiency)	1,106,585.80
State Retirement Board	1,600.00
Boards	9,588.68
Commissions	5,757.82
Foreign Fire Insurance Tax	137,185.94
Miscellaneous	123,507.06
Refunds	651.13
Mothers' Assistance	26,079.80
Insane Hospitals	468,199.94
Hospitals	563,703.14
State Hospitals	24,504.56
Homes	64,040.60
Training Schools	494,878.42
Societies	14,598.53
Institutions	281,940.83
Judiciary	2,036.13
Associate Judges	88.00
State Highway Department:	
Reimbursements	\$822,355.54
Summary Requisitions	62,535.60
State Reward	82,391.32
Due Bond Road Fund	152,199.03
	<hr/>
	1,119,481.49
School Warrants:	
Common Schools, due July 4, 1921	\$295,652.21
High Schools, due July 4, 1921	2,025.00
Edmonds Bill, due Feb. 1, 1922	3,849,966.33
	<hr/>
	4,147,643.54
Amount due Schools not yet certified to the Department:	
Edmonds Bill, due August 1, 1922	8,500,000.00
Grand Total	<hr/>
	\$18,384,219.46

September 29, 1922.

Adjutant-General's Warrants.....	\$577.81
Adjutant-General's Department.....	10,401.06
Armory Board.....	28,131.09
Agriculture Department.....	5,118.78
Attorney-General's Department.....	1,102.18
Auditor-General's Department.....	17,767.68
Forestry Department.....	67,658.62
Health Department.....	69,285.89
Insurance Department.....	374.34
Internal Affairs Department.....	10,664.67
Labor and Industry Department.....	6,824.47
Library and Museum.....	1,738.48
Printing and Binding Department.....	27,494.11
Public Grounds and Buildings Department.....	274,488.42
Public Instruction Department.....	23,618.64
Vocational Education.....	7,403.48
Normal Schools.....	447,330.47
Public Service Commission.....	46,846.85
Public Welfare Commission.....	54.91
State Police Department.....	524.06
Treasury Department.....	299.05
Water Supply Commission.....	45,697.48
State Retirement Board (Deficiency).....	1,106,585.80
Miscellaneous Boards.....	3,762.63
Commissions.....	82,503.04
Miscellaneous.....	101,924.52
Refunds.....	1,572.52
Mothers' Assistance Fund.....	22,029.72
Insane Hospitals.....	572,170.69
Hospitals.....	468,369.03
State Hospitals.....	92,455.77
Homes.....	90,313.57
Training Schools.....	790,969.97
Societies.....	14,243.92
Institutions.....	355,853.79
Judiciary.....	1,632.41
Associate Judges.....	48.00

State Highway Department:

Reimbursements.....	\$676,267.26
Summary Requisitions.....	28,427.37
State Reward.....	64,744.83
Due Bond Road Fund.....	152,199.03

 921,638.49

School Warrants:

Common Schools, due July 4, 1921.....	\$213,847.50
Edmonds Bill, due Feb. 1, 1922.....	2,870,005.92

 3,083,853.42

Amount due Schools not yet certified to the Department:

Edmonds Bill, due Aug. 8, 1922.....	8,300,000.00
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 Grand Total..... \$17,003,329.83

October 31, 1922.

Adjutant-General's Warrants.....	\$4,828.00	
Forestry Department Warrants.....	45,035.96	
Senate of Pennsylvania.....	364.00	
House of Representatives.....	1,350.00	
Adjutant-General's Department.....	6,405.42	
Armory Board.....	799.99	
Agriculture Department.....	29,301.29	
Attorney-General's Department.....	4,882.01	
Auditor-General's Department.....	17,975.96	
Banking Department.....	1,925.00	
Board of Motion Picture Censors.....	3,082.60	
Executive Department.....	2,006.64	
Fisheries Department.....	181.64	
Forestry Department.....	87,943.21	
Health Department.....	127,556.26	
Insurance Department.....	4,793.67	
Internal Affairs Department.....	21,465.98	
Labor and Industry Department.....	39,199.58	
Library and Museum.....	5,832.87	
Mines Department.....	11,172.08	
Printing and Binding Department.....	24,475.31	
Public Grounds and Buildings Department.....	105,298.79	
Public Instruction Department.....	95,011.23	
Vocational Education.....	19,601.20	
Normal Schools.....	414,418.15	
Public Service Commission.....	95,770.19	
Public Welfare Commission.....	4,545.71	
State Department.....	3,310.76	
State Police Department.....	4,801.53	
State Reporter.....	250.00	
Treasury Department.....	6,587.89	
Water Supply Commission.....	64,273.44	
State Retirement Board (Deficiency).....	1,106,585.80	
State Retirement Board.....	2,003.26	
Miscellaneous Boards.....	5,206.20	
Commissions.....	6,803.28	
Miscellaneous Accounts.....	2,656.54	
Refunds.....	1,958.81	
Mothers' Assistance Fund.....	21,407.72	
Insane Hospitals.....	234,291.76	
Hospitals.....	502,580.98	
State Hospitals.....	33,057.51	
Homes.....	119,401.22	
Training Schools.....	597,801.44	
Societies.....	18,228.88	
Institutions.....	293,374.07	
Judiciary.....	3,763.68	
State Highway Department:		
Reimbursements.....	\$581,564.67	
Summary Requisitions.....	46,629.46	
State Reward.....	3,766.15	
Due Bond Road Fund.....	152,199.03	
		784,159.31
School Warrants:		
Edmonds Bill, due February 1, 1922.....	\$923,100.00	
Edmonds Bill, due August 1, 1922.....	8,207,561.41	
		9,130,661.41
Grand Total.....		\$14,118,388.23

November 29, 1922.

Adjutant-General's Warrants.....	\$10,387.41
Forestry Department Warrants.....	53,812.94
Senate of Pennsylvania.....	1,336.00
Adjutant-General's Department.....	267.66
Armory Board.....	2,880.94
Agriculture Department.....	19,552.04
Auditor-General's Department.....	3,686.76
Board of Motion Picture Censors.....	242.44
Forestry Department.....	79,933.85
Health Department.....	52,083.33
Insurance Department.....	536.60
Internal Affairs Department.....	114.35
Labor and Industry Department.....	9,636.35
Library and Museum.....	3,896.00
Mines Department.....	237.08
Printing and Binding Department.....	8,313.85
Public Grounds and Buildings Department.....	8,124.44
Public Instruction Department.....	12,178.26
Vocational Education.....	2,004.77
Normal Schools.....	287,110.87
Public Service Commission.....	950.53
State Reporter.....	337.42
Treasury Department.....	14.00
Water Supply Commission.....	3,655.33
State Retirement Board (Deficiency).....	855,698.41
Miscellaneous Boards.....	2,359.92
Commissions.....	4,944.03
Miscellaneous.....	200.00
Refunds.....	5,200.28
Mothers' Assistance Fund.....	826.55
Insane Hospitals.....	40,516.57
Hospitals.....	22,737.00
Training Schools.....	180,202.02
Institutions.....	36,674.61
Judiciary.....	2,158.43

State Highway Department:

Reimbursements.....	\$487,727.08	
Summary Requisitions.....	34,209.56	
State Reward.....	7,247.74	
		529,184.38

School Warrants:

Edmonds Bill, due August 1, 1922.....	6,250,950.62
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Grand Total.....	\$8,492,946.04
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Appendix B.

DETAILED STATEMENT OF RECEIPTS FROM JUNE 1, 1921 TO NOVEMBER 30, 1922.

GENERAL FUND.

SOURCE OF RECEIPT	AMOUNT
CORPORATION TAXES:	
(Percentage of Revenue 57.318)	
Capital Stock.....	\$28,461,643.36
Corporation Loans.....	8,205,942.22
Corporation Gross Receipts.....	5,691,975.60
Corporation Gross Premiums.....	429,140.72
Corporation Penalties.....	66,641.66
Corporation Interest.....	74,818.34
Bonus on Charters.....	2,898,688.56
Anthracite Coal Tax.....	8,288.58
Total.....	<u>\$45,837,139.04</u>
MISCELLANEOUS TAXES:	
(Percentage of Revenue 10.447)	
Bankers and Brokers Gross Receipts.....	\$42,780.33
Bank Stock.....	1,649,525.08
Borough Loans.....	1,018,579.33
Building and Loan Stock.....	71,552.19
County Loans.....	169,855.64
Foreign Insurance Premiums, Life.....	3,114,023.10
Gasoline, 50 percent.....	1,490,490.91
Tax on Income of Banks having no Capital Stock.....	79,932.85
Notary Public Commissions.....	54,975.00
Notary Public Gross Receipts.....	8,317.48
School Loans.....	401,972.94
Unregistered Foreign Insurance Premiums.....	1,845.22
Stock Transfer Stamps.....	235,843.41
Pennsylvania Recip. Exchange Premiums.....	14,549.05
Total.....	<u>\$8,354,242.53</u>
MISCELLANEOUS INCOME:	
(Percentage of Revenue 2.181)	
Care of Insane.....	\$266,669.16
Conscience Money.....	836.30
Collection of Surety on Bonds.....	37,696.80
Cup Vending Machines.....	139.62
Escheats, General Fund.....	384,984.35
Examination of Moving Picture Films.....	141,865.00
Fees of Public Officers.....	793,886.77
General Fund Interest.....	66,062.77
Rent of State Property.....	3,881.22
Sale of Confiscated Property.....	1,701.85
Sale of Highway Blue Prints.....	6,830.04
Sale of Military Stores.....	9,890.35
Sale of Highway Maps.....	2,094.00
Sale of Pamphlet Laws.....	234.00
Sale of Picture Seals.....	5,596.25
Sale of State Property.....	16,005.49
Highway Contract Forfeits.....	6,000.00
Total.....	<u>\$1,744,373.97</u>

SOURCE OF RECEIPT	AMOUNT
COLLECTIONS FROM COUNTY OFFICERS:	
(Percentage of Revenue 29.186)	
Inheritance, Collateral.....	\$682,255.86
Inheritance, Direct.....	135,238.73
Inheritance, Transfer (Resident).....	13,313,720.64
Inheritance, Transfer (Non-resident).....	1,224,937.98
Writs, Wills and Deeds.....	569,738.90
Auctioneers' Licenses.....	28,979.32
Billiards and Pool Licenses.....	329,892.29
Bottlers' Licenses.....	53,077.57
Brewers' Licenses.....	183,230.51
Brokers' Licenses.....	223,176.41
Distillers' Licenses.....	862.92
Eating House Licenses.....	161,579.86
Liquor Licenses, Retail.....	705,250.45
Liquor Licenses, Wholesale.....	315,295.18
Mercantile Licenses, Retail.....	4,079,642.03
Mercantile Licenses, Wholesale.....	1,206,754.64
Non-resident Hunters' Licenses.....	24,419.80
Peddlers' Licenses.....	6,658.48
Theatre and Circus Licenses.....	95,605.86
Total.....	\$23,340,317.42
LICENSES:	
(Percentage of Revenue .777)	
Bedside Licenses.....	\$825.00
Chiropody Licenses.....	1,150.00
Cold Storage Licenses.....	6,300.00
Egg Opening Licenses.....	1,600.00
Employment Agents' Licenses.....	28,150.00
Enrollment and Licensing Stallions.....	4,013.00
Feeding Stuff Licenses.....	62,925.00
Fertilizer Licenses.....	35,344.20
Lime Licenses.....	1,400.00
Medical Licenses.....	22,085.00
LICENSES (Continued):	
Midwife Licenses.....	\$370.00
Oleomargarine Licenses.....	433,695.26
Physio Licenses.....	300.00
Reciprocity Licenses.....	3,000.00
Renovated Butter Licenses.....	500.00
State Brewers' Licenses.....	19,000.55
Therapy Licenses.....	625.00
Total.....	\$621,283.01

SOURCE OF RECEIPT	AMOUNT
FINES:	
(Percentage of Revenue .091)	
Bake Shop Fines.....	\$30.00
Cold Storage Fines.....	365.00
Court Martial Fines.....	2,756.36
Department Act Fines.....	45.00
Egg Fines.....	2,324.40
Employment Agents' Fines.....	250.00
Factory Fines.....	320.00
Feeding Stuff Fines.....	1,575.00
Fertilizer Fines.....	1,450.00
Fire Alarm and Panic Fines.....	85.00
Fishing Fines, General Fund.....	967.00
Fruit Syrup Fines.....	120.00
Ice Cream Fines.....	625.00
Labor Law Fines.....	1,725.00
Lime Fines.....	60.00
Mattress Fines.....	50.00
Meat Fines.....	3,620.50
Milk Fines.....	10,272.75
Milk Plant Fines.....	525.00
Minor Labor Law Fines.....	1,710.00
Moving Picture Building Fines.....	120.00
Moving Picture Censor Fines.....	400.00
Non-alcoholic Drink Fines.....	2,625.00
Oleomargarine Fines.....	300.00
Pharmacy Fines.....	10,145.00
Potato Fines.....	1,543.00
Public Road Fines.....	110.30
Pure Food Fines.....	15,305.22
Registered Package Fines.....	625.00
Renovated Butter Fines.....	4,400.00
Sausage Fines.....	6,953.00
Selling Cigarettes to Minors—Fines.....	50.00
State Police Fines.....	445.41
Turpentine Fines.....	300.00
Vinegar Fines.....	350.00
Total.....	<u>\$72,547.94</u>
MISCELLANEOUS RECEIPTS NOT AVAILABLE FOR REDUCTION OF LEGISLATIVE APPROPRIATIONS:	
U. S. GOVERNMENT:	
Tuberculosis Fund.....	\$273,191.68
Aid to Highways.....	1,871.88
Aid to Social Hygiene.....	67,649.65
Soldiers and Sailors Home, Erie.....	22,140.00
State College.....	100,000.00
Nautical School.....	56,250.00
Children's Welfare.....	59,078.18
Total U. S. Government.....	<u>\$580,181.39</u>
MISCELLANEOUS:	
Foreign Insurance Premiums, F. & M.	\$777.21
Game Fines.....	45.00
Annuity for Right of Way.....	10,000.00
Vocational Educational Fund Interest.....	5,730.22
Highway Construction Refunds.....	479,649.93
Refunded Cash.....	73,059.62
Total.....	<u>\$1,149,443.37</u>
Total Receipts, General Fund.....	<u>\$81,119,347.28</u>
RECAPITULATION.	
Receipts available for reduction of Legislative Appropriations.....	\$79,969,903.91
Receipts only available for Specific Purposes.....	1,149,443.37
Total Receipts, General Fund.....	<u>\$81,119,347.28</u>

A Survey of the Fiscal Policies of the State Highway Department of Pennsylvania

FOR THE

CITIZENS' COMMITTEE ON THE FINANCES
OF PENNSYLVANIA

By WILLIAM H. CONNELL

Formerly Chief of the
Bureau of Highways of Philadelphia

December, 1922

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Acknowledgments.

The Citizens' Committee on the Finances of the State of Pennsylvania was appointed by Gifford Pinchot, then Republican nominee for Governor of the State of Pennsylvania, for the following purposes:

(1) To secure and consider the best available figures showing the money income of the State from all sources during the current biennial fiscal period to secure and consider the best available figures showing the probable total revenue from all existing sources during the next biennial fiscal period; and to make needful recommendations as to sources of revenue and methods of taxation, with the object of avoiding additional or unnecessary burdens upon the people of the State.

(2) To inquire into the expenditures of all monies appropriated for any purpose by the legislative session of 1921; to consider the necessity for such expenditures; to estimate the probable deficits, where such exist, and to make needful recommendations for the more economical and effective expenditure of the State's funds.

(3) To examine into the present methods of appropriating and expending the money received by the State from all sources; to make recommendations as to the fiscal policies of the State; and to propose a form of budget that will assist in preventing the appropriation of monies in excess of the probable revenue.

The Committee in undertaking its responsibilities early decided that it was advisable to have special surveys made of the spending policies of each of the larger departments through an expert peculiarly qualified in each respective field.

The Committee chose for the expert to make the survey of the fiscal policies of the Highway Department, Mr. William H. Connell, formerly chief of the Bureau of Highways of Philadelphia. Mr. Connell has an international reputation as a highway engineer. For many years previous to 1912 Mr. Connell was in charge of public engineering work in New York City. From 1908 to 1910 he was in charge of the outside engineering in the construction of a

bridge across the Harlem River at Madison Avenue. From 1910 to 1912 he was deputy commissioner of public works of the Borough of the Bronx, N. Y. City. He devoted special attention to the reorganization of the engineering department of the Borough in which over three hundred civil engineers were employed. During this period he was in charge of the reconstruction and maintenance of several hundred miles of streets and roads. In the latter part of 1910 he constructed the White Plains Experimental Roadway, comprising about thirty sections of different methods of modern highway construction, this being the first roadway of the kind built in New York. The results obtained from this service test roadway construction were a most important factor in outlining the subsequent country road highway construction in New York and vicinity. From 1912 to 1917 he was chief engineer of the Bureau of Highways and Street Cleaning in Philadelphia. He was appointed by the Blankenburg administration to place the department on a sound engineering basis. The work under the jurisdiction of this department consisted of the maintenance and construction, including design, etc., of about eighteen hundred miles of highways, the construction of the parks and boulevards in the city, the maintenance of the entire sewer system and of all bridges in the city; also cleaning of the streets and the collection and disposal of ashes, rubbish and garbage for the entire city. Since 1917 he has been engaged in private business, from 1917 until 1919 he was Engineering Executive for Day & Zimmermann, Inc., Philadelphia, and from 1919 until recently he was on the Executive Staff of the Philadelphia Rapid Transit Co.

Inasmuch as there are many important phases of public policy entering into each of these spending policies it was deemed advisable to associate with each of the experts an advisory committee to add their judgments to the matter at hand.

The Advisory Committee on Highways comprises three highway engineers of international reputation concerning the highway problem. The engineer members are: Mr. Nelson P. Lewis, Mr. Arthur H. Blanchard and Colonel Walter Wilson Crosby.

Mr. Lewis was for twenty years or more chief engineer of the Board of Estimate and Apportionment of New York City, and as such had not only a very important part in the highway work in New York City, but also had supervision of the planning of the outlying sections. He has recently been employed by the Russell

Sage Foundation as the engineer in charge of the planning of the whole metropolitan area of New York City and its environs.

Mr. Blanchard is President of the National Highway Traffic Association, and was at one time in charge of the highways of Rhode Island as state engineer. He has advised for a couple of years in highway matters abroad. He has been professor of highway engineering at Columbia University and is now professor of highway engineering and highway transport at the University of Michigan.

Colonel Crosby was formerly chief engineer of the Maryland Highway Commission, and as such organized the State Highway Department and introduced, developed, and established, modern methods of highway work in that State. At present, Colonel Crosby is in charge of the Grand Canyon National Park.

Mr. Lewis and Mr. Blanchard have each been President of the American Road Builders' Association. Colonel Crosby was its Vice-President and Director for a number of years.

The citizen members are: Mr. Robert P. Hooper, Chairman; Mr. Clarence Harper, Mr. David Jameson and Mr. M. T. Phillips.

Mr. Robert P. Hooper is President of the Pennsylvania Motor Federation, and is one of the pioneer advocates of good highways in this country.

Mr. Clarence Harper is an investment banker of Philadelphia.

Mr. Jameson is an ex-President of the American Automobile Association, and has long been known throughout the state for his interest in highways.

Mr. M. T. Phillips is a member of many farm organizations, is known nationally as a Guernsey cattle breeder, and is chosen as a representative of the farmers in the state.

These surveys by experts are made as reports to the Committee and the Committee has immediately released them for publication. The Committee, of course, cannot and does not take credit to itself for either the work or the recommendations. Credit in these matters are due solely to the expert and those who have advised with him.

CLYDE L. KING,
Chairman.

The Citizens' Committee on the Finances of Pennsylvania.

Clyde L. King, Chairman	Hon. D. Edward Long
Charles J. Rhoads, Treasurer	General Asher Miner
Mrs. Walter King Sharpe, Secretary	Mr. T. D. Stiles
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Mr. Allen W. Hagenbach	Hon. George W. Woodruff
Mr. Alba B. Johnson	Hon. George Woodward
Mrs. Mary Flinn Lawrence	Mr. Paul D. Wright

Foreword.

In order to make this survey it was necessary to have first-hand knowledge of the Highway System, the methods of performing the work—both contract and maintenance, and the supervisory organization. To gain this knowledge I have made numerous motor trips throughout the state, a number with the Chief Engineer, the District Engineers and the Maintenance Engineer. These inspections covered close to eight thousand miles of the State Highway System, and included every county in the state, thus affording an opportunity to size up the condition of the roads, to see the construction work in progress on sixty contracts involving an expenditure of \$17,000,000, and to personally visit every Highway District Office throughout the state.

In making this survey I was very ably assisted by Mr. James W. Follin, Engineer of the Bureau of Municipal Research of Philadelphia, who spent the greater part of his time in the Harrisburg Office making a study of the functional procedure governing the conduct of the business of the Department and supervising the compilation of data. His work embraced a study of the procedure of handling the work of District Offices, Shops, Garages, Payrolls, Purchasing and Supplies, etc. His activities also brought him in contact with the field work throughout the state.

The Highway Department has been most generous in their assistance, and compiled whatever information was requested.

This report has been thoroughly discussed in personal conference with the engineer, members of the Advisory Committee, and they unanimously concur in its findings and recommendations, and in the manner of their presentation.

The citizen members of the Advisory Committee have reviewed the report, and they unanimously approve its form and concur in its findings and recommendations.

WILLIAM H. CONNELL.

November 21, 1922.

In Memoriam.

On Friday, October twenty-seventh, the very sad news was received of the death of Col. W. D. Uhler, Chief Engineer of the State Highway Department. His untiring efforts contributed in a great degree to the high standard of the construction and maintenance work performed by the Department. His passing means a great loss not only to the State Highway Department, but to the whole engineering profession as well.

Survey of the Fiscal Policies
of the
State Highway Department of Pennsylvania
by
WILLIAM H. CONNELL

**Scope of the Business Activities of the
State Highway Department.**

In order to review intelligently the fiscal policies of the State Highway Department of Pennsylvania, which in the last analysis embrace virtually all the policies of the Department, it is necessary to have before us a picture of the business activities of the Department and the organization controlling them.

The Highway Department was organized in 1903 and the state system of roads was created under the Sproul Act, May 31, 1911. The state embraces an area of 44,832 square miles. In the state are 100,000 miles of public roads, excluding cities and boroughs, of which 10,320 miles comprise the state system and are under the jurisdiction of the Highway Department. Of these approximately 5,026 miles have some form of pavement and 5,294 miles are unimproved. 3,970 miles of roads constitute the Primary System, or the main trunk line highways. The remaining 6,350 miles comprise the Secondary System, or the feeders to the main trunk line highways. The Department also supervises county and township road work.

The expenditures incurred under the jurisdiction of the State Highway Department from 1911 to 1923 were derived from the following sources:

1. *Legislative Appropriations*—

Of Motor License Receipts	\$49,935,094	
Of Bond Issue Proceeds	51,509,037	
Of General State Revenue	<u>44,178,295</u>	\$145,622,426

2. *Federal Aid* 16,527,240

3. *Agreements with Local Political Sub-Divisions* . . 15,971,512

\$178,121,178

Expenditures by Administrations—

The amount spent by the Highway Department

during the Administration from 1911 to 1915....	\$17,232,826
from 1915 to 1919....	28,542,822
from 1919 to 1923....	*132,345,530

Total from 1911 to 1923.....	\$178,121,178
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From 1919 to 1923 the Department also handled construction of county and township work amount-

ing to.....	\$17,914,708
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(This makes the total supervised

from 1919 to 1923.....	150,260,238.)
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Grand Total—1911 to 1923.....	\$196,035,886
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During this period about \$50,000,000 was spent on the Highway System for maintenance, about \$128,000,000 on construction and about \$18,000,000 on general and miscellaneous expenses. Approximately 3150 miles of pavement were constructed or reconstructed.

The preponderance of work performed from 1919 to 1923 is due to the bond issue of \$50,000,000 being available during this period and \$15,000,000 of Federal Aid money and Motor License Fees amounting to over \$35,000,000. The remainder was from General Fund appropriations.

PERSONNEL.

The Highway Commissioner is the chief executive officer. Next in authority is the Assistant Commissioner. The construction work is under the jurisdiction of the Chief Engineer; the maintenance work is under the Maintenance Engineer; the Township Division, which supervises work to which the State has contributed, and also acts in an advisory capacity to the Townships, is under the Township Commissioner; the Automobile Division, which is in charge of the collection of license fees, is under the Registrar; the auditing and accounting, purchasing, clerical and stenographic work is under the Executive Manager. These division heads report to the Executive Officers.

Reporting to the Chief Engineer and the Maintenance Engineer are fifteen district engineers with offices located throughout the State. During the working season the engineering and clerical

*October, November and December estimated and includes about \$4,000,000 of contract authorizations that may not be paid until after January 1, 1923.

organizations comprise 1,300 employees, the maintenance work organization 8,000 and the Construction Department forces 1,000, making a total of 10,300 employees. The labor forces performing the contract work under the jurisdiction of the Department number 8,000, making a total of 18,300 engaged in the performance of the work under the jurisdiction of the State Highway Department. The number of employees varies with the amount of work to be performed, which in turn is dependent upon the money available.

In addition to the Harrisburg Office, the Department maintains fifty-four offices throughout the State for the District Engineers and County Superintendents.

EQUIPMENT OPERATED.

The Department owns equipment valued at \$2,627,000. Some of the major equipment operated by department forces at the peak of the working season comprise:

About 400 Motor Trucks	
60 Traction Engines	100 Steam Rollers
45 Stone Crushing Plants	30 Concrete Mixers
7 Steam Shovels	20 Locomotives
1,000 Units of Road Equipment	
such as Sprinklers	
Road Machines, Sweepers, Spreaders,	
Scrapers, Water Carts, Dump Carts, etc.	

This brief outline emphasizes two important points:

1. The magnitude of the problem, which makes it of the utmost importance that the fiscal and other policies of the Department shall be the result of the best advice and judgment available.
2. The necessity for additional financing to pave the unimproved mileage of the system.

These were the reasons this study was undertaken and why so many different interests were called upon to advise concerning the policies of the Department.

It is the purpose of this report to make constructive recommen-

dations for strengthening the organization, and to suggest the adoption of policies which will tend to place the operations on a sounder business basis. Credit will be given for noteworthy accomplishments, and attention likewise will be called to any major mistakes or mismanagement.

Summary of Recommendations.

Completion of the Paving of the Highway System.

The Department should determine upon a road improvement policy that will take into consideration the completion of the paving of the Highway System within a reasonable time and at a justifiable expense.

DETERMINATION OF A SOUND ECONOMIC POLICY.

This necessitates making a comprehensive Highway Transport Survey, so that plans can be formulated based on economic and business considerations.

Some important factors to be considered are:

1. The mileage of roads to be improved.
2. The funds available and the probable future revenue.
3. The relative importance of the different sections of highway routes to be improved, from the standpoint of the State as a whole and from a local standpoint.
4. The probable amount and character of traffic each road will be subjected to for a number of years.
5. The transportation costs on the different kinds of roads, etc.

From this information a comprehensive construction program can be laid out to fit the different situations, rather than use the same standards of construction on every section of road irrespective of their relative importance. This will make it possible to build a greater mileage for a given sum than is possible under the present policy.

WIDTH OF RIGHT OF WAY

Provision should be made for a definite policy concerning the width of the right of way on the Primary and Secondary Systems, keeping in mind future traffic requirements—such as making provisions for eventually widening the pavements approaching large centers of population.

PROVISION FOR ULTIMATE HIGHWAY SYSTEM.

The necessary steps should be taken for the condemnation of the land for the Ultimate Highway System at once. A compre-

hensive highway system will then be provided for, and the construction can proceed as the funds become available.

Financial.

BUDGET CONTROL.

More rigid control over the fiscal policies of the Department through the agency of a budget system common to all departments under the jurisdiction of the Governor of the State.

FINANCING TO COMPLETE SYSTEM.

A comprehensive program should be determined upon for the financing necessary to complete the paving of the highway system within a given time.

This program should be given wide publicity, so that every section of the state would understand the necessity of following such a plan, in order that the completion of the paving of the highway system can proceed in a logical way.

FUNDS NEEDED FOR FEDERAL AID WORK.

The Legislature should be impressed with the importance of making the necessary appropriations to secure the Federal Aid allotments for the state. The amount allotted by the Government to be used in Pennsylvania through 1923-24 is \$8,500,000. To make this sum available to the state, to be used for the construction of improved types of pavement, it will be necessary for the state to contribute \$17,000,000 to be used in conjunction with the Government appropriation during 1923-24.

COUNTY, TOWNSHIP AND BOROUGH DEFICITS.

The Legislature should be urged to make available without delay funds to pay the deficits, amounting to \$7,992,536, in the appropriations for State-aid, township and borough work.

COLLECTION OF MOTOR LICENSE FEES.

Provide for the collection of motor license fees and the issuance of tags every two years instead of every year. This should result in making available an additional \$450,000 a year for road construction.

This would be an advantage to both the owner and the State, the owner avoiding the trouble and expense incident to making the yearly application for license.

Provision should be made to rebate the license fee for the second year in case the owner disposes of his automobile.

PAYMENT OF MAINTENANCE LABOR FORCES.

Discontinue having the County Superintendents pay the maintenance labor forces. This function should be handled by paymasters reporting to the Auditing and Accounting Division.

WHITEWASHING POLES.

Until the paving of the Highway System is completed all work such as the extensive whitewashing of poles along highway routes should be discontinued, and the moneys thus saved should be used for paving. The whitewashing should be done only where it serves as a guide to the traveling public and makes night driving safer.

Provision for the Convenience and Comfort of the Traveling Public.

PROVISIONS FOR TRAFFIC DURING CONSTRUCTION.

In cases where detours will result in a great hardship to the traveling public the pavements should be constructed for half the width at a time where practicable, and the traffic allowed to use the other half of the roadway.

METHOD OF OILING ROADS.

A more rigid policy should be adopted with respect to oiling only half sections of a road at a time. This work should be done in such a manner that one side of the road will always be sufficiently dry so that it will not damage the paint on vehicles traveling at a normal rate of speed.

OILING EARTH ROADS.

Nothing has been done to allay the dust on the several thousand miles of earth roads. The more important of these roads should be oiled.

ÆSTHETIC CONSIDERATIONS.

Enlist the services of an agency to co-operate with the Highway Department with a view of giving more consideration to the æsthetic or scenic side in planning highway improvements.

NAMES FOR HIGHWAYS.

Inaugurate an intensive campaign to make all the highways known by names for the entire length of the routes,—such as The Lincoln Highway; also separate names, instead of numbers, for sections between centers of population symbolic of the communities through which they pass, such as “The Harrisburg Road.”

INFORMATION SIGNS.

Place signs along the highway routes calling attention to matters of general interest, such as historical sites, names of rivers and streams, altitude of summits, et cetera.

DIRECTION SIGNS.

Place direction signs, such as are now being placed on the Primary System, on the entire system, but of different color or design than is used on the Primary System.

TRAFFIC CONTROL.

Adopt a policy of more extensive marking of divisional traffic lines in the center of the pavements as a reminder to traffic to keep to the right side of the road in the direction in which it is moving.

Changes in Organization.

TOWNSHIP CO-OPERATION.

Enlarge on the township activities but discontinue the separate township division and place this work under the jurisdiction of the Chief Engineer. This will do away with duplication, and will centralize the responsibility of this function in the general organization.

Separate divisions should be created only where the work is of such a nature that it cannot be performed through the regular organization channels.

DIVISIONAL ORGANIZATION.

Divide the state into four highway divisions, which should be placed under the jurisdiction of Division Engineers, to whom would report the District Engineers in their respective territories. The Division Engineers would report to the Chief Engineer, and it is the purpose to have them represent him in a great many matters, such as decisions, et cetera, that are now handled at Harrisburg. This would be a great convenience to the public and would result in a much better balanced organization.

COMBINE CONSTRUCTION AND MAINTENANCE DIVISIONS.

For the purpose of eliminating duplication of effort and formulating a better balanced organization, the construction and maintenance divisions should be combined and placed under the jurisdiction of the Chief Engineer; and the field work should be handled through the Division Engineer, to whom the District Engineers would report.

CONSTRUCTION BUREAU.

Eliminate the construction bureau and discontinue extensive construction activities by the State forces, confining their work to the upkeep of the Highway System.

The best way to safeguard the State's interests is by doing construction work, of a definite nature, that can be easily specified and can be readily controlled by contracts awarded through competitive bids.

QUALIFICATIONS OF COUNTY SUPERINTENDENTS.

The standard of the qualifications for the County Superintendents of Maintenance should be raised to conform with the standards of positions carrying equal responsibility in the Engineering Construction Division.

Engineering Construction Policies.

TYPES OF PAVEMENT.

Discontinue the policy of calling for bids exclusively on cement-concrete pavement to such an extent as has been the practice where other comparable standard high-class types would fit the situation equally as well.

RESURFACING MACADAM ROADS.

Heavily traveled waterbound macadam roads that the state is likely to maintain for a number of years should be resurfaced with penetration bituminous instead of waterbound macadam.

ELIMINATION OF DANGEROUS CONDITIONS.

Priority should be given to the widening and adjustments necessary to eliminate dangerous conditions on such heavily traveled roads as The Lincoln Nighway.

CONSTRUCTION ON CURVES.

The Department should use super-elevation for the construction of all pavements on curves. By elevating the pavements on the outside in this way it is made much safer for travel.

INFORMATION TO BIDDERS.

When bids are called for on construction work, information should be given as a result of soundings, so that the bidders may more closely determine the amount of rock excavation and thus eliminate the gamble they have to incur under the present method, which simply gives the quantity of excavation without disclosing any information as to the character of material.

ACCEPTING AND REJECTING BIDS.

Recommendations relative to the reasons for accepting and rejecting bids should be compiled after each letting and made a matter of public record.

Concerning Motor Vehicles.

MOTOR LICENSE LISTS.

To facilitate the enforcement of speed laws by cities and other subdivisions of the state, the automobile license records should be compiled by counties rather than alphabetically for the entire state, as is the present practice. The listings should be made available to the police authorities soon after the first of the year.

ADJUSTMENT OF MOTOR LICENSE FEES.

There is apparently a wide range of opinion throughout the country with respect to what constitutes equitable license fees

for motor vehicles of all classes. This whole question should be given a close study with a view to determining upon license fees based on the horse power, weight, and mileage traveled of the vehicles, and the purposes for which they are used.

Elimination of Politics.

A law should be passed to prohibit political activity by Department employees.

Historical.

The State Highway Department was organized in 1903, but until the passage of the Sproul Act on May 31, 1911, creating the State Highway System, the Department's activities were confined to State Aid road construction, distribution of township money, survey work connected with public roads and the collection of motor license fees.

The highways included in the Sproul Act were not placed under the jurisdiction of the State until June 1, 1912. During the administration from June 1st, 1911 to January, 1915, the progress made was not startling.

During the first half of the administration beginning January, 1915, considerable progress was made, particularly with respect to the maintenance of the highway system, the revising of specifications, making surveys and the planning of the main, or what was later known as the Primary, Highway System.

The administration of the Department under the late Commissioner, Lewis S. Sadler, has been the most progressive thus far; not, however, due to the fact that more funds were available, but because more was done by him toward placing the business and engineering policies on a sounder basis than was accomplished during all of the previous administrations. Even though there is still ample room for improvement, there is no denying the fact that great strides were made during the Sadler administration. Generally speaking, the ideals and standards of work were on a high plane. No doubt the late Commissioner's program contemplated improvements and recommendations for placing the Department on a sounder business basis.

Even though this report will disagree with certain policies and make recommendations for changes, it is not intended to cast any reflection nor to imply in any way that the State received anything but a high class administration of the Highway Department under the late Commissioner. The organization under him worked hard and conscientiously and accomplished a great deal. He used his best efforts to see that the State received a dollar's worth for every dollar expended.

Subsequent events justify the opinion that during the Sadler administration the first consistent effort was made to place the Department on a high plane. Other administrations may have had their bright spots, but lack of ability, or vision, or a sincere desire to elevate the Department, has retarded its progress.

Financial.

CONTROL OF EXPENDITURES.

The expenditures from 1911 to 1921 were simply allocated against the separate funds appropriated. As the Department did not keep a functional and control expense classification until 1921, it would be impossible to trace the expenditures against funds prior to this time without an elaborate and costly audit, which would hardly be justified. Since 1921 the sources of income and purposes for which moneys were expended can be very readily traced through the expense classification maintained.

At the present time the Department is operating on more or less of a budget system of its own, but a review of the History of the Department points to the necessity of controlling the appropriations and expenditures through a well defined budget system common to all other Departments, under the supervision of an agency answerable to the Governor of the State.

COUNTY DEFICITS.

Such a budget system would prevent over-appropriating moneys to some of the counties from the State Aid Fund, as was done in 1913 and 1914 to the extent of about \$500,000, thus depriving other counties of their share of this fund. The method of adjusting this was to wipe the slate clean, so that today some of the counties are still overdrawn and others have not received the amount to which they were entitled.

TOWNSHIP DEFICITS.

A somewhat similar condition existed with respect to the allotments to the second-class townships. In this case the amount due them for road work from 1906 to 1915 was far in excess of the appropriations for township bonus, the deficit being about \$4,500,000. This was adjusted by suspending the bonus from 1915 until enough appropriations from the State were made to

pay the deficit. They were, therefore, deprived of financial aid until 1920 when the Township reward went into effect.

Under the present law the townships are paid a reward for road work performed. During this administration \$2,000,000 was appropriated for this purpose. Up to November 16, 1922, only \$655,168 had been paid, but the Department was unable to meet additional obligations for completed work in excess of \$650,000 due to insufficient funds in the State Treasury. Additional township work is under way, for which the State is liable to the extent of nearly \$200,000 and there are no funds available to reimburse the townships.

HIGHWAY DEPARTMENT DEFICITS.

Another instance of the necessity for tightening up the fiscal control occurred during the present administration. The State entered into agreements with the counties to construct roads, some on the Secondary State Highway System and others not on the State Highway System, the State's share of which was to be paid for out of the State Aid and State Highway Appropriations. Contracts were accordingly let, and when the work was under way and the payments became due it was found that there was no money in the State Treasury to meet these appropriations. An agreement was entered into to make these payments out of the available funds from the bond issue, which it was the policy of the Department to use only for construction on the Primary System. Thus, about \$7,000,000 of the Bond Money was diverted from the original purpose and the money spent on secondary roads at the expense of the more important highways on the Primary System.

When this agreement was entered into it was with the understanding that the funds would be simply borrowed from the bond fund, it being the opinion that moneys would become available at an early date to pay up the deficits. The transaction did not show up in the financial statements of the Highway Department until the close of the year, or when it became apparent that the deficit was real and not imaginary.

On January 1, 1922, an appropriation was made from the bond fund of about \$7,300,000, the amount borrowed. The money due from the counties covered by the agreements is about \$3,000,000;

so that the total amount by which the bond fund was depleted is about \$4,300,000.

The monthly financial statement of the State Highway Department, dated October 31, 1922, indicates a deficit of \$11,990,710.24 of General Fund Appropriations for the use of the State Highway Department. This total is made up as follows:

State Highway Appropriations, 1917, 1919, 1921..	\$3,546,058.38
State Aid Highway, 1917, 1919, 1921.....	6,663,256.49
Maintenance and Repairs (borough), 1921.....	285,637.82
Maintenance and Repairs (State Aid), 1919, 1921..	166,477.57
Township Reward, 1919.....	414,853.20
Township Reward, 1921.....	914,426.78
	<hr/>
	\$11,990,710.24

It will be noted from the title of the appropriations in which the deficiencies exist that the principal sufferers are the local subdivisions of the State. Of the total deficit, \$7,992,536.47 is made up from appropriations made by the legislature, to assist these sub-divisions in their road programs. Needless to say, this is a hardship on the local communities. It is, also, an illuminating example of the necessity for conducting the business of the State on a budget system.

EXPENDITURE OF BOND MONEY.

The stated policy of the Department was to spend the Bond Money and Federal Aid Money on the Primary System. They have, however, spent about \$2,000,000 of Bond Money on the Secondary System.

EXPENDITURES OF MOTOR LICENSE FUND.

A short sighted policy of the present administration was the use of about \$5,000,000 of the motor fund for permanent improvement of roads on the Primary System in certain sections of the State, when the money was urgently needed for maintenance and the temporary improvement of unimproved roads throughout the State. This practice should be discontinued, as while there is every reason for levying a motor license tax for maintenance of all highways, there is no reason why such a tax should be levied to be used for the construction of an improved type of highway at

a cost of millions of dollars in any one section. All of this money should be used, and a great deal more than is available could be used, for maintenance and the temporary improvement of unimproved roads. In this way the money could be more equally distributed and no undue portion allocated to any one locality.

LABOR PAYROLL PROCEDURE.

The Maintenance Labor forces, consisting of about 8,000 employees in the height of the season, are paid by individual checks distributed principally by the County Superintendents. There are five paymasters who occasionally make the payments, to check up the County Superintendent, to prevent padding of the payroll, etc. Obviously, a payroll of \$5,000,000, such as the one referred to, is of enough importance to justify a system through which the men will be paid by an agency other than the one which employs them and supervises their work. All the labor forces should be paid by paymasters reporting to the Auditing and Accounting Division. This would make impossible such an instance of padding of the payroll as was discovered in one of the counties last year.

Highway Improvement Policy.

The Highway Department under the present administration established a Primary System of main trunk line highways connecting the county seats, centers of population and important routes in adjacent states. This system comprises 3,942 miles of highways. The whole cost of the improvement of unimproved sections was to be assumed by the State and the counties were urged to use their funds for the construction, within their limits, of the Secondary System of State Highways or laterals leading into the Primary System.

WIDTH OF PAVEMENT.

The standard width of the pavement on the Primary System is eighteen feet with four-foot shoulders on each side. The standard width of pavement on the Secondary System, or laterals, leading to the Primary System is sixteen feet with three-foot shoulders on each side.

CONSTRUCTION THROUGH BOROUGHES.

In order to insure a continuous connected improvement it was decided to construct pavements on the Primary System of the standard width through boroughs wholly at the expense of the State.

PAVING UNIMPROVED SECTIONS.

In view of the fact that the greater part of the mileage of the Primary System consisted of unimproved roads, the Department adopted a policy of paving the unimproved sections before reconstructing the paved sections. The paved sections consisted principally of waterbound macadam, and, except in instances where these pavements might fail through excessive traffic, they were to be maintained until the unimproved sections were completed.

During the present administration the Department authorized 986 miles of construction on the unimproved sections of the Primary System. They have also authorized 227 miles of reconstruction of waterbound macadam with improved types, on the Primary System. It will thus be noted that they have not adhered to the policy of first taking care of the unimproved sections. The traffic on a number of the reconstructed sections was not as heavy nor were adjustments as urgently required as on other waterbound highways of the Primary System.

Construction Policy.

EXPENDITURE OF BOND MONEY.

The policy in the construction of all highways payable out of the bond money, and in fact, all highways on the Primary System, has been to make adequate provision for drainage and to use a type of pavement into which concrete entered in some form; in other words, either concrete pavements or pavements with concrete foundation.

COUNTY AND TOWNSHIP BOND MONEY.

In the expenditure of county and township funds for construction of roads on the Secondary System, the Department is insisting that when the proceeds of Bond Money are to be used, a type of construction shall be adopted equal to that for the Primary System,

except that in some cases where these highways are subjected to light traffic the pavement need not necessarily conform to the standard of the Primary System but an adequate type is specified to conform with the traffic requirements.

Cost to Complete Paving Under Present Policies.

After the present contracts are completed and all funds exhausted there will be 1,138 miles of unimproved roads on the Primary System and about 1,140 miles of waterbound macadam. Based on the average cost per mile of the last four years it will take about \$60,000,000 to construct pavements on the unimproved mileage, and an additional \$60,000,000 to reconstruct the waterbound macadam mileage, or \$120,000,000 to complete the Primary System.

There are about 4,150 miles of unimproved roads on the Secondary System which are at present of local importance and serve as feeders to the Primary System. Based on a construction cost per mile of 80% of that used for the Primary System, it would cost about \$170,000,000 to construct pavements on this mileage. There are also about 1,500 miles of waterbound macadam on the Secondary System, the reconstruction of which will cost about \$60,000,000. The total estimated cost, therefore, to complete the paving of the entire highway system now laid out, with improved types of pavement, according to present policy, will be about \$350,000,000. From 1911 through 1923, \$100,000,000 has been spent for road construction on the State Highway System, making the total cost, exclusive of general expense for the completion of the Highway System, \$450,000,000.

Considerations Entering Into Completion of Paving.

A large portion of the waterbound macadam roads on the Primary System constitute old main highways, taken over by the State, and are among the heaviest traveled in the State. The Lincoln Highway, for example, crossing the State from Bucks County and the Jersey Line through Philadelphia to Pittsburgh and thence to the Ohio State Line, a distance of 353 miles, is almost entirely waterbound macadam. This is probably the heaviest traveled highway in the State and is in urgent need of

widening and reconstruction in many sections. It is obvious that the widening and reconstruction of such heavily traveled water-bound highways should not be postponed for a number of years, especially where traffic conditions are dangerous and maintenance costs are excessive, having long since passed the economic limit. Nor can the Commonwealth postpone for a number of years providing adequate pavements for the people who are compelled to use the 4,150 miles of unimproved Secondary State Highways.

In order to develop a policy for the completion of the paving of the highway system it is necessary to visualize what can be accomplished with future revenues. Not knowing what these revenues will amount to, yet having to focus the problem for the purpose of discussion, it is necessary to assume probable revenues.

Probable Sources of Revenue.

Assuming two more Bond issues of \$50,000,000 each . .	\$100,000,000
Federal Aid Funds available from 1923 to 1925	8,500,000
	<hr/>
	\$108,500,000

Estimated State Appropriations and County Contributions toward the completion of the Highway System based on the last several years' average \$6,000,000 a year.
 Estimated Motor License Fees—\$12,000,000 to \$15,000,000 a year, based on 1922 and estimated increase.

ALLOCATION OF FUNDS.

Assuming that all Bond Money and Federal Aid money will be used on the Primary System, all State Highway appropriations and County contributions on the Secondary System, and all Motor License Fees for maintenance and temporary improvements of unimproved roads, the following estimate will indicate the time required to complete the paving of the entire system under the present construction policy.

Time to Complete Paving Under Present Policies.

The next bond issued will not be available until 1925 and as \$50,000,000 is the limit fixed for this issue, this sum will be

\$10,000,000 short of the amount required to improve the unimproved mileage on the Primary System; but there will also be available about \$8,500,000 of Federal Aid Money. Assuming that these two sums would complete the mileage, at the maximum rate of progress the work would be completed by January 1, 1927. Such a program would mean deferring all reconstruction and widening of the remaining 1,140 miles of waterbound macadam highways on the Primary System until such time as a subsequent bond issue is made available, which in all probability will not be before 1931, or eight years hence. Therefore, the Primary System would not be completed until about 1934.

Assuming an expenditure of \$6,000,000 a year made up of State and County funds, on the unimproved Secondary Highways, it will be about thirty years or 1953 before the 4,150 miles can be paved, thus completing the paving of the entire system. This does not take into consideration reconstruction of the existing 1,500 miles of waterbound macadam on the Secondary System or other reconstruction on the Primary and Secondary System which will be required during this period and will cost a very considerable sum.

Future Highway Improvement Policy.

This emphasizes the necessity of a sound economic highway policy being determined upon. There are 10,321 miles of roads to consider, virtually all of which are of relative importance, either as main highways or as feeders to the main highways, and the feeders cannot be brushed aside. They must receive due attention, not in the indefinite future, but now. They are in many instances of more importance to those compelled to use them than are the main highways to a considerable number of those using them. The State is confronted with a condition, not a theory.

It is questionable, therefore, whether it would not have been a wiser policy to have condemned the land for widening and relocations for the ultimate Highway System, and to have built to meet traffic needs for each locality only, instead of using the same standards for construction in outlying sections, where there will not be any appreciable amount of traffic for a number of years, as those used adjacent to large centers of population where very heavy traffic has to be provided for.

Following this theory, it is worthy of consideration whether this would not be the wisest policy to pursue in the future, so that the entire Highway System can be paved at as early a date as possible.

Every road on the Primary System is now being treated with practically the same relative importance, so far as construction methods are concerned, whereas it will be twenty years or more before the greater number of the highway routes will receive the volume of traffic that some sections of such routes as the Lincoln Highway are subjected to today. It is not good business or sound from an economic standpoint to construct for probable traffic twenty or thirty years hence, when a less expensive construction with reasonable maintenance costs would serve present traffic, and especially when there is an urgent need for the funds representing the difference in cost, on other sections of the State system. Intelligent upkeep of inexpensive types of construction is often far less costly than paying the interest and sinking fund charges on high-priced types of construction, when traffic conditions do not warrant the expense.

In referring to Governmental expenditures, President Harding said, and truly, "The blazing of the path of economy is no easy task. Expenditure is too often applauded where earnest watchfulness for economy goes unnoticed except for complaint." We should build to keep pace with the traffic requirements. This has been the policy in the building of railroads. They built single-track roads and maintained them until double-track and four-track roads were required. We must not neglect the present traffic needs to take care of the probable future requirements.

The remark has been made, comparing Pennsylvania with New York, Maryland and Massachusetts, "That it was probably just as well that Pennsylvania delayed building roads because now more durable roads are being built. These states built a great mileage of roads in the early days of motor traffic, when the type used was not as durable as has since been developed; consequently they have a very heavy maintenance charge." This is true, but they have had good roads all these years, and the residents of Pennsylvania and other states have been using them, thereby bringing business, which has contributed toward making the roads a good investment.

In later years the same comparison may be drawn between the roads Pennsylvania is building today and those that will be best suited to the traffic twenty years hence. There will always be a certain amount of obsolescence—as is the case with steam railroads, street railways and industries in general.

HIGHWAYS AN ECONOMIC PROBLEM.

There are three angles to this all important problem with which the whole country is confronted today: the social, the engineering and the financial; and each must be given due consideration. The whole question, therefore, resolves itself into one of economics. It would not be good business to postpone building a railroad until money was available for a four-track road when a single-track road would answer the purpose for a number of years. The same principle applies to the highway problem when viewed from a broad-gauged economic standpoint. Bonds, however, should not be issued for a greater term than the life of the structure. This would be the mean economic life of the whole cost of the work—grading, paving, etc.

HIGHWAY TRANSPORT SURVEY.

Before laying out a Highway System and launching into a construction program, the Department should be fortified with a comprehensive Highway Transport Survey. This should include a traffic census taken during the winter, summer, spring and fall seasons on the main or proposed main routes and the feeders to these routes, a study of the probable future traffic, based upon information relative to the population, agricultural districts, industries, resorts, etc., to be served by the highway routes when improved, and a study of the cost of operation of the vehicular traffic under different conditions of line and grade.

From this information the economics of the different pavement types for definite sections of the highway routes can be intelligently discussed and decisions made on the basis of fitting the types of pavement to the requirements.

Such a survey is very much needed in the State of Pennsylvania. The Department has devoted very little attention to traffic surveys and there is a lack of information on this subject. A comprehensive survey such as is suggested would show the present and

probable future traffic of the respective highway routes. It would show the fallacy of adopting the same standards for all the main highway routes. It would be of great assistance in determining the methods of financing the construction, the terms of bond issues, etc. Basic information of a definite character is always more desirable as a guide in making decisions than a guess or the judgment of individuals.

There is a woeful lack of economic data in the Highway Industry. Decisions relative to the standards of construction are frequently based upon the unsupported opinion of the engineer, and in many localities the influence of the propaganda of the material interests plays an important part.

The economic possibilities are great in this industry and Pennsylvania has a splendid opportunity to further its own interests and make a valuable contribution to highway economics by means of a comprehensive Highway Transport Survey.

Organization.

The control of the work in any business and of the manner in which it is supervised is largely dependent upon the character of the personnel and the effectiveness of the functional organization. These factors bear a similar relationship to the types of machinery used and the effectiveness of the plant layout for routing materials in a factory. It is very pertinent, therefore, to review the present organization of the State Highway Department and draw attention to any apparent weaknesses.

PRESENT ORGANIZATION.

The charts on pages 109 and 110 represent the present organization. It will be noted that the Commissioner and Assistant Commissioner are the chief executive officers and that the following five divisions report directly to the executive officers.

CONSTRUCTION DIVISION.

The Construction Division, which is under the jurisdiction of a Chief Engineer, is composed of four branches, namely, Engineering, Drafting, Testing and the Construction Bureau.

The Engineering Branch embraces planning surveys, preparation of specifications and the actual supervision and inspection of

construction work. The Drafting Branch is responsible for the drawing of plans, designing of structures, preparation of preliminary estimates and checking of monthly and final estimates and development of standards. The Testing Branch investigates and tests materials and supervises all experimental and research work. The Construction Bureau, organized during the present administration, is engaged in the actual construction of roads with the forces of the Department.

MAINTENANCE DIVISION.

The Maintenance Division, which is under the direction of a Maintenance Engineer, is in charge of the maintenance of all State Highways and State-Aid Highways in the Commonwealth. Special inspectors from Harrisburg make periodic trips over the highways to enforce the standards and methods of maintenance work.

TOWNSHIP DIVISION.

The Township Division, which is under the direction of a Township Commissioner, maintains a supervisory relation over the Township Supervisors and enforces the rules and regulations governing the activities of the townships and the handling of all matters in connection with the distribution of the State Reward Fund. This Division is charged with the duty of issuing permits for the placing of sub-structures on the highways, and for the erection of telephone or telegraph poles within their limits, and also conducts negotiations for the purchase of toll-roads.

MANAGEMENT DIVISION.

The Management Division, which is under the direction of an Executive Manager, has charge of the general office, the Auditing and Accounting Bureau, the Purchasing Bureau, the Equipment Bureau, the clerical, filing and stenographic work, etc., the compilation of statistical data and the co-ordination and enforcement of the departmental procedures.

AUTOMOBILE DIVISION.

The Automobile Division, which is under the direction of a Registrar, receives applications and collects fees for the registration of all motor vehicles and drivers' licenses. The work of this

Division is conducted by five major groups, namely: Receiving, Registration, Filing, Shipping and Mailing, and Inspection.

Proposed Changes in Organization.

The two major functions around which all other functions of the Highway Department revolve are:

The Construction of highways, and

The Maintenance of highways.

CONSTRUCTION AND MAINTENANCE.

Under the present organization, the fifteen district engineers have charge of the construction work within their districts under the direction of the Chief Engineer. They also have charge of the maintenance work under the direction of the Maintenance Engineer. This results in an unbalanced supervisory organization and obviously causes a certain amount of confusion and duplication of effort, which could be very readily avoided by putting both the construction and maintenance work under the jurisdiction of the Chief Engineer. The construction and maintenance of highways go hand in hand and are so dovetailed that it is only logical, in order to get the best engineering results, that the organization charged with the responsibility of constructing the pavements should also be charged with the responsibility of maintaining them. There should be no division of responsibility in the engineering branch of the service.

Familiarity with all the details surrounding the construction work is a great asset in the future maintenance problem, which, after all, is the more important function of the two, and should be under the jurisdiction of the best engineering skill available. It is much simpler to construct a pavement properly than to maintain one, for in construction it is only necessary to follow the specifications and instructions to the letter of the law, whereas the maintenance problem requires initiative, judgment and constant attention to apparently trivial details in order to keep the highways constantly in first-class condition for travel. The problem largely resolves itself into the application of the old rule, "A stitch in time saves nine."

TOWNSHIP WORK.

The work under the jurisdiction of the Township Division is of such a nature that if handled directly through the regular engineering organization it would eliminate another possible source of duplication of effort. Separate divisions should be created only where the work cannot be handled by the regular fundamental machinery that must necessarily be set up to conduct the business. The drawing of plans and specifications and the supervision of a great deal of the township work are now being handled by the Engineering Division and there is evidence of confusion as well as duplication of effort.

The Department should continue the policy of co-operating with the Township Supervisors, and instructing them in standard methods of maintenance and construction, in the purchasing of proper materials and equipment, in the awarding of contracts and in the handling of accounting, and also continue to help them through the issuance of bulletins and by attending the regular state, city, township and county conventions. In fact, every effort should be made to enlarge on this very important function of the departmental activities. But this co-operation can be more readily accomplished through the regular machinery than by means of a separate division. The District Engineers are necessarily, by the very nature of their work, in close touch with the township activities. Their offices are established at strategic geographical locations throughout the State and their work carries them through all the townships in the State. It is for these reasons that it would seem to be a wise policy for the legislature to provide for the continuance or enlargement of the work in connection with co-operating with the Township Supervisors through the regular organization channels rather than through a separate township division.

DIVISIONAL ORGANIZATION.

As indicated on the organization chart, fifteen district engineers report direct to the Chief Engineer on construction and to the Maintenance Engineer on maintenance. This is not good organization, as too many engineers report directly to these respective heads.

Assuming that the construction and maintenance divisions be combined under one head, the principle under discussion remains

unchanged. There is a lack of balance in the organization that must necessarily slow up the operations. Its principal weaknesses are:

Too much detail has to be handled by the Chief Engineer, which diverts his attention from the major problems

The District Engineers are in need of someone with broader experience than they possess to confer with them more frequently concerning their problems.

Too many decisions have to be made from Harrisburg, causing unnecessary delays in the prosecution of the work, thus inconveniencing the public.

It is customary under such conditions in large industries to delegate authority to division heads, who are clothed with the authority to enforce the policies and make decisions in accordance therewith.

In a large Department, such as the Pennsylvania State Highway Department, the organization should be so formulated that the responsibility and the compensation shall be graded, and those next in authority trained to step into the positions of those higher up. It is obvious that this condition does not exist in the Pennsylvania State Highway Department, where there is such a wide difference in the authority vested in the Chief Engineer and that vested in the District Engineers.

In order to increase the effectiveness of the organization it should be more evenly balanced. There should be four Division Engineers, with offices at strategic locations throughout the State, to whom the District Engineers would report. They should be clothed with authority to represent the Chief Engineer and should be his eyes in the territory under their jurisdiction.

QUALIFICATIONS OF SUPERINTENDENTS OF MAINTENANCE.

The best engineering talent in the Department is concerned chiefly with the construction of pavements and not with maintenance, which is under the jurisdiction of county superintendents of maintenance reporting to the District Engineers. While some of these superintendents are doing very good work, the qualifications for these positions do not conform to the work requirements. It

is not necessary that the maintenance work should be entirely directed by technically trained men, but the supervisory positions, such as the maintenance superintendents, should be held by technically trained, practical road builders, or by practical road builders who have gained their knowledge from wide experience in building and maintaining highways under modern methods. Maintenance is nine-tenths of the highway problem. Pennsylvania with its great mileage of roads under the jurisdiction of the State Highway Department should have the best available skill controlling this branch of the service. This point cannot be too strongly emphasized and it would be doing a great injustice to the people of the Commonwealth to fail to recommend in this report that the qualifications of the superintendents of maintenance should in the future be placed on a much higher scale. This recommendation is not, however, intended to take away any credit from the superintendents who are handling their work effectively and efficiently at the present time.

Engineering Principles and Supervision.

The engineering principles applied to the construction and maintenance work are, generally speaking, of high standard and conform to present-day practice with respect to the character of work performed in conformance with the policies of the Department. It is questionable, however, whether some of the policies represent the best judgment.

CONSTRUCTION WORK.

The engineering supervision and inspection of contract work is strict, as it should be; and the standard of the work has been improved upon from year to year for the last several years. The specifications are very thorough, and through the Bureau of Tests the Department carries on experimental and research work with a view to improving upon both standards and methods. The personnel in the engineering organization work hard and conscientiously and they are to be commended for the high standard of work done under their supervision.

MAINTENANCE WORK.

The execution of the maintenance work lacks "pep." The bituminous surface treatments and resurfacing are dragged out

too long, so that in many instances the important highway routes are not in first-class condition for travel until the end of the season. This work should be pushed early in the season. The energy of the whole department should be concentrated upon it even to the extent of sacrificing the progress of contract work if necessary. The primary function of the Department is to keep the highways continuously in good condition and they should be in especially good condition during the summer months when they are most needed and most heavily traveled. This makes it imperative that the work be planned in such a manner that it will be as *nearly completed* as is possible in the early part of the season. It is not intended to criticize the Engineer of Maintenance and his assistants, who are working hard and conscientiously to keep the work up to a high standard. But the policy seems to be at fault, as the work that should be completed by the beginning of the summer is spread over the entire season. No doubt the lag in this branch of the service is due partly to the fact that the qualifications for county superintendents do not conform to a proper standard for the work requirements, and partly to the dual jurisdiction over the District Engineers.

Handling Traffic While Working on Highways.

The policy of closing the highways entirely during construction has caused, in many instances, an undue amount of inconvenience to the traveling public. It is, of course, more desirable, from an engineering and financial standpoint to construct highways for the full width, as the method of constructing half the highway at a time causes considerable inconvenience to the contractor, increases the difficulties of construction and is liable to add to the cost of the work. However, where heavily traveled main highways are to be paved and it is necessary to divert the traffic for a considerable distance over poor roads, thereby greatly increasing the mileage to be traveled, it is desirable, when practicable, to adopt the policy of constructing half the road at a time. The importance of the road and the condition and length of the detours are the factors that should be taken into consideration. This is a very important matter, as the indications are that there will be a considerable amount of construction work going on for a number of years, and there will always be a certain amount of reconstruction.

BITUMINOUS SURFACE TREATMENTS.

The present stated policy of the Department in connection with the surface treatments is to oil the roads half at a time. This policy is not strictly adhered to and very often the roads are oiled for the full width. This practice should be discontinued and the roads should be treated in such a manner that one side of the road will always be sufficiently dry to travel over in comfort.

Construction by Department Forces.

In the spring of 1920 a special bureau was organized under the Engineering Division to do construction work with State forces. This bureau has in its employ 1000 men engaged in constructing about 30 miles of road at an estimated cost of over \$2,000,000.

The bureau was organized with a view to training an organization that could take over the work on which the contractors might fail due to financial difficulties or other reasons, and to perform work where it was felt that competitive bids were too high.

The first reason would have some merit were it not for the fact that the Maintenance Division, through the very nature of its work has forces that could readily be used to finish the work on contracts taken over by the State.

The second reason is very questionable as it is hard to conceive of an organization employed by a State Department, confronted with the red tape and difficulties surrounding all public departments, performing work more cheaply than it can be performed under competitive bids, provided complete information concerning the work to be performed is supplied to bidders.

There will always be instances where the bids are too high, but the work can be readvertised. There may be isolated instances where department forces will do work of this nature cheaper than under a competitive basis, but when all the factors entering into the cost have been given proper consideration the competitive system, taken year in and year out, will be less costly for this character of work. Construction work by state forces to the extent it is being done in Pennsylvania today is establishing a dangerous precedent. Even though they may be doing the work economically and efficiently it can be readily understood how it could be abused under a purely political or inefficient administration of the State Highway Department, such as all states have from time to time.

With our present form of Government the method of performing work under the jurisdiction of a Public Works Department should be so designed as to safeguard the public interest throughout changing administrations. It is therefore a much wiser and safer policy to devote all possible energy to the development of healthy competition of competent contracting forces in public work.

There is also a tendency for the Maintenance Division to delve too extensively into construction work that in the long run could be performed for less cost under competitive bids. The Maintenance Department has done construction work of this nature costing about \$2,000,000 during the last four years. It is not intended to criticize the quality of work, nor to discuss the efficiency with which it is performed at the present time, but to emphasize the fact that it is a dangerous policy as it can be so readily subjected to gross abuse.

The work of the Department is of such great magnitude that it is a stupendous task to supervise properly the construction and maintenance work. The attention of the Department should be centered on this phase of the business, and the construction done by contract under competitive bids. The specifications should contain complete information so that there would not be any gamble with respect to the quantity of the different classes of work.

It may be desirable to do some construction work with State forces but it should be confined to small jobs of a nature that are not easily specifiable, or that can be more readily handled by the State forces than under competitive bids. In short, it is inadvisable for the State to go into the construction business to any greater extent than is necessary. The controlling factor should be the character of the work. All work that is not easily specifiable and subject to proper control under contracts, such as the upkeep of the highways, should be performed by state forces. But all work that is specifiable and of a definite nature, so that bids can be received on predetermined quantities and the work properly inspected, should be done so far as is possible under competitive bids.

Types of Pavements Constructed.

Over 90% of the pavements constructed during the present administration are of cement concrete. Of a total of 1,700 miles

constructed during the last four years 1,520 miles are of this type.

Other standard high-class types comparable in price and quality might have been given more consideration. Sheet asphalt on a concrete foundation, for example, has been very satisfactory as a high type road pavement for a great many years and is very largely used in cities under heavy traffic. In many instances sheet asphalt pavements have been in continuous service for forty years or more. It is one of the few pavements still standing on the Bates Test road in Illinois, where the pavements are being tested to destruction. It is an unwise policy to "put all your eggs in one basket." It is true in a number of instances that the department has called for alternate bids on concrete and bituminous concrete or sheet-asphalt on a concrete foundation, but in the lettings of the last four years cement-concrete was called for exclusively on 608 out of 825 contracts. The Department no doubt has been using its best judgment and there are, of course, differences of opinion with respect to the best type of pavement. Concrete, however, has not proved the panacea of all paving ills and as long as there are other high-class standard types of pavement the cost of which compares favorably with that of concrete, it would seem to be a wise policy to use them at least more extensively than they have been used under the present administration of the State Highway Department.

Resurfacing Water-Bound Macadam Roads.

It has been the policy of the Department to resurface with water-bound macadam heavily traveled water-bound highways such as the Lincoln Highway. A wiser policy would have been to have done this resurfacing with penetration bituminous macadam, except when the pavements are to be replaced with an improved type within a year or two. This does not cost much more than the water-bound resurfacing and if the cost of surface treatments required on water-bound from year to year are added, the penetration bituminous macadam would in all probability be cheaper. It is a more durable pavement than the water-bound and in the long run will cost the State less. Since it also requires less frequent surface treatments it is more desirable from the standpoint of convenience to the traffic.

The Department has adopted the policy of penetration resurfac-

ing this season on the Bethlehem Pike and at some other locations. But they are still carrying out the water-bound resurfacing on a number of heavily traveled highways in instances where the use of this type of construction has passed the economic limit. It would seem that the Department should have taken advantage of the opportunity to use this method of resurfacing on the very heavily traveled water-bound highways that it is the policy to maintain for a number of years to come.

Reconstruction.

The reconstruction in the past four years of several hundred miles of water-bound macadam highways with improved types of pavement, is hardly consistent with the Department's policy of maintaining the existing stone roads until the unimproved sections of the Primary System have been paved. With funds so scarce it would have been a better policy to have maintained the greater portion of the mileage of the roads that were reconstructed, thus making the moneys used available for constructing unimproved sections of the Primary System, or for the widening and reconstruction of heavily traveled sections of the Lincoln Highway.

Allaying Dust on Unimproved Roads.

It has been the policy of the Department not to use oil for dust allaying purposes on the earth roads, of which there are several thousand in the State System. A considerable amount of this mileage is subjected to quite a lot of local traffic and a number of these roads are also subjected to through traffic. Where the roads are subjected to an appreciable amount of traffic they should unquestionably be oiled. The first call of the Department is to maintain in as satisfactory a condition as is possible and practicable the highways under its jurisdiction. The completion of the construction of the Primary System is a very laudable undertaking, but it is not an argument that justifies compelling a large portion of the population using the unimproved roads to be subjected to one of the greatest pests of motoring—the dust nuisance.

Designation of Highway Routes.

The various sections of highway routes are designated by unrelated numbers. A very few of the routes or sections of routes

are generally known by names such as Lincoln and William Penn Highways, Allentown-Easton Road, Bethlehem Pike, Reedsville Pike, Lancaster Pike, etc. The numbers are meaningless to the traveling public without a description of the principal communities through which the routes pass and their ultimate destination. It would unquestionably add very much to the interest and convenience of the traveling public and stir up considerable local interest if all the main highway routes were named for their entire length and also sections of routes from one principal community to another. The names could be placed on direction signs and the highways would be referred to by names rather than by route numbers. An intensive campaign to accomplish this purpose would create widespread interest throughout the State.

Direction Signs.

The Department is now having direction signs placed on the Primary System. These signs are very much needed, and the practice should be extended to include the whole highway system.

Information Signs.

Too little attention has been paid to informing the traveling public of matters of interest along the highway routes. Signs should be erected designating the names of streams and rivers, historical sites, altitudes of summits, et cetera.

Æsthetic Considerations.

There is a tendency among engineers to pay too little attention to the æsthetic side of the problem. The Highway Department should consult with specialists in regard to this phase of the problem, particularly where extensive changes in grade and relocation work is contemplated. The scenic side should receive more serious consideration in planning and relocating highways.

The Pennsylvania Department has taken a very commendable step toward beautifying the highways by co-operating with the Forestry Department in the planting of trees along the highway routes.

Making Traffic Lines on Pavements.

The Department has recently adopted the policy of marking the center of the pavement on curves of 300-foot radius or less.

This method of reminding the traffic to keep on the proper side of the road should be extended by marking more frequent divisional traffic lines in the center of the pavements. It would be a constant warning to traffic, thus reducing the number of accidents.

Motor License Fees.

Motor vehicles should be taxed in proportion to their horsepower, weight, mileage traveled and the purposes for which they are used. The tax on commercial vehicles, or all vehicles operating for profit, should naturally be figured on a different basis from that on which the license fees of the passenger vehicles for private use are figured.

There is apparently a wide range of opinion throughout the country with respect to what constitutes equitable license fees for motor vehicles, if we are to judge by the fees charged by the different states. This whole question should be given close study, with a view to determining license fees that will be based upon the fundamental principles just enumerated rather than on a more or less arbitrary basis.

COLLECTION OF MOTOR LICENSE FEES.

At the present time licenses are issued for motor vehicles for a period of one year. It costs the Department about \$600,000 per year for this service. If licenses were issued for a period of two years it is estimated that the cost would be \$250,000 less per year, which sum, added to the additional interest (\$400,000) on the year's license fees paid in advance, would make available an additional \$450,000 per year to be used on the roads.

Summary of Noteworthy Accomplishments.

General.

The progress that was made during the Sadler Administration toward placing the organization and the business of the Department on a sound business basis is worthy of the greatest praise.

Financial.

ACCOUNTING SYSTEM.

The Department installed an excellent accounting system during 1920.

CONSTRUCTION FINANCED BY BONDS.

The use of a type of construction—to be paid for with the proceeds of bond issues—that would last for the length of the term of the bond is a sound business policy.

Main Trunk Line Highways.

The conception and adoption of the primary system of main trunk lines is of fundamental importance to the State, and worthy of the greatest commendation.

Engineering and Upkeep.

ENGINEERING STANDARDS.

The application of high-class engineering principles in construction and maintenance work is worthy of the greatest praise.

COUNTY AND TOWNSHIP WORK.

The stand the Department has taken to enforce the same engineering standards in the work of the counties and townships as exist in the work of the State Highway Department is a sound policy.

SPECIFICATIONS.

The compilation of very thorough specifications and an instruction book for the guidance of the engineering and inspection forces in the field reflects credit on the engineering organization.

UPKEEP OF ROADS.

The inauguration of a patrol system through which some one man is responsible within certain limits for taking care of minor repairs is an excellent thing to do. This recognition of the theory that "a stitch in time saves nine" will save the State a great deal of money.

EXPERIMENTAL ROADWAYS.

The construction of experimental roadways to test different methods of road construction is to be highly commended.

TESTING MATERIALS.

The thoroughness with which materials are tested before they are permitted to enter into the contract work is to be commended.

SUPERVISION OF WORK.

The thorough and strict supervision of the contract work reflects great credit on the Department.

WHITEWASHING OF POLES ON ROUTES.

The whitewashing of poles and fences along the highway routes, to make night travel safer and to distinguish the State Highways from other roads, has met with popular approval.

GUARD RAILS.

The use of stout posts connected with wire cable, on certain sections of the highways, to prevent cars from falling down embankments—due to skidding and other causes—will prevent many serious accidents.

ELIMINATION OF GRADE CROSSINGS.

The elimination of a number of dangerous grade crossings and the efforts that are being made to do away with all such crossings, are to be commended.

Æsthetic Considerations.

PLANTING OF TREES.

The arrangement, in co-operation with the Forestry Department, for the planting of trees along the roadsides, to beautify the highways, is to be highly commended.

ADVERTISING SIGNS NOT PERMITTED ON RIGHT OF WAY.

The Highway Department has forbidden any kind of advertising signs on the right of way, and the intensive campaign they are conducting to enforce this regulation is worthy of great commendation.

Traffic Guides.

DIRECTION SIGNS.

The arrangement to place direction signs on the main trunk-line highways will be of great benefit to the traveling public.

DESIGNATION OF DIRECTIONS OF ROUTES.

The method of marking poles near intersections with distinctive colors, denoting the North and South and East and West routes, as recommended by the Pennsylvania Motor Federation, is to be commended.

MARKING TRAFFIC LINES.

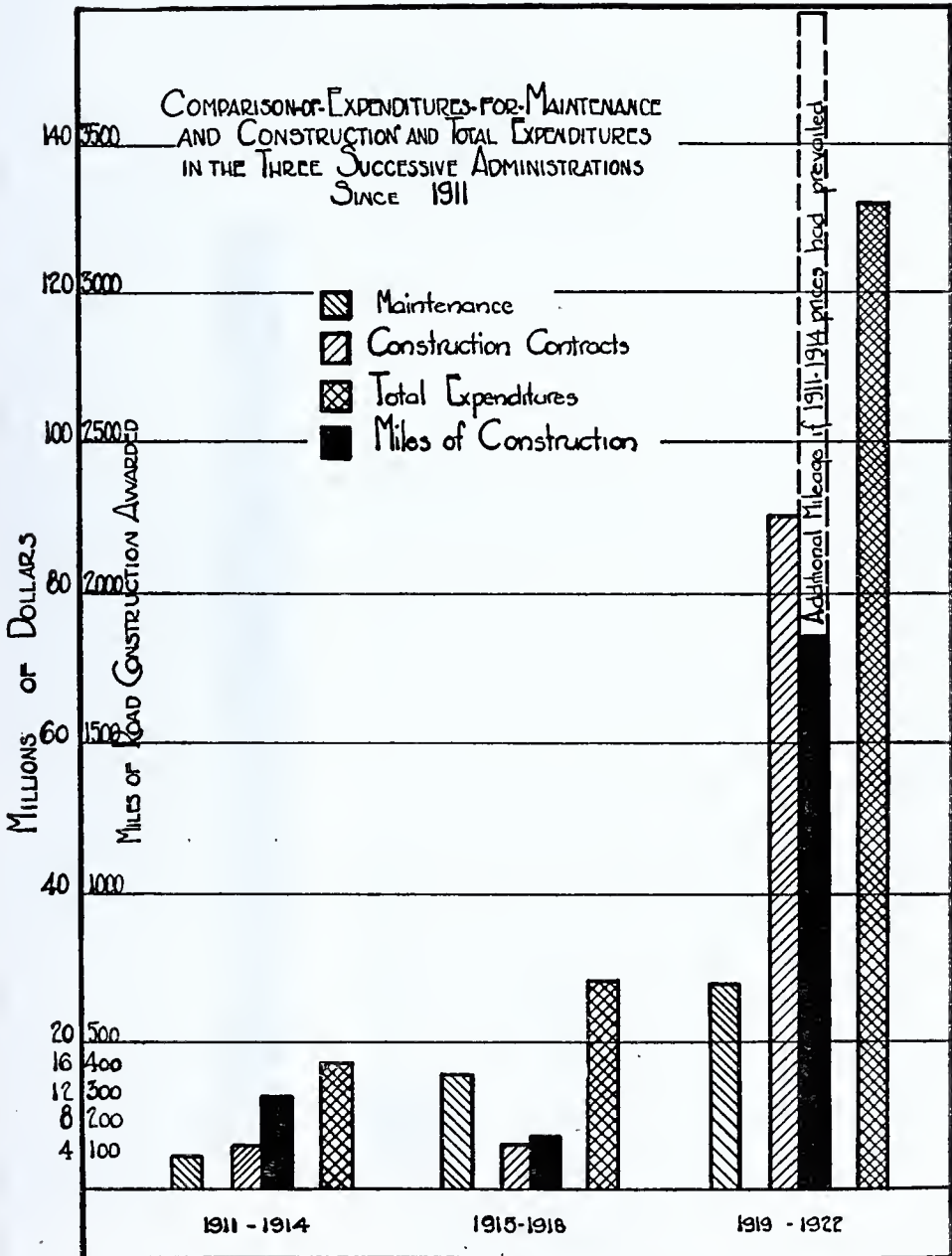
The marking of traffic lines on the surface of improved roads at curves is a step in the right direction.

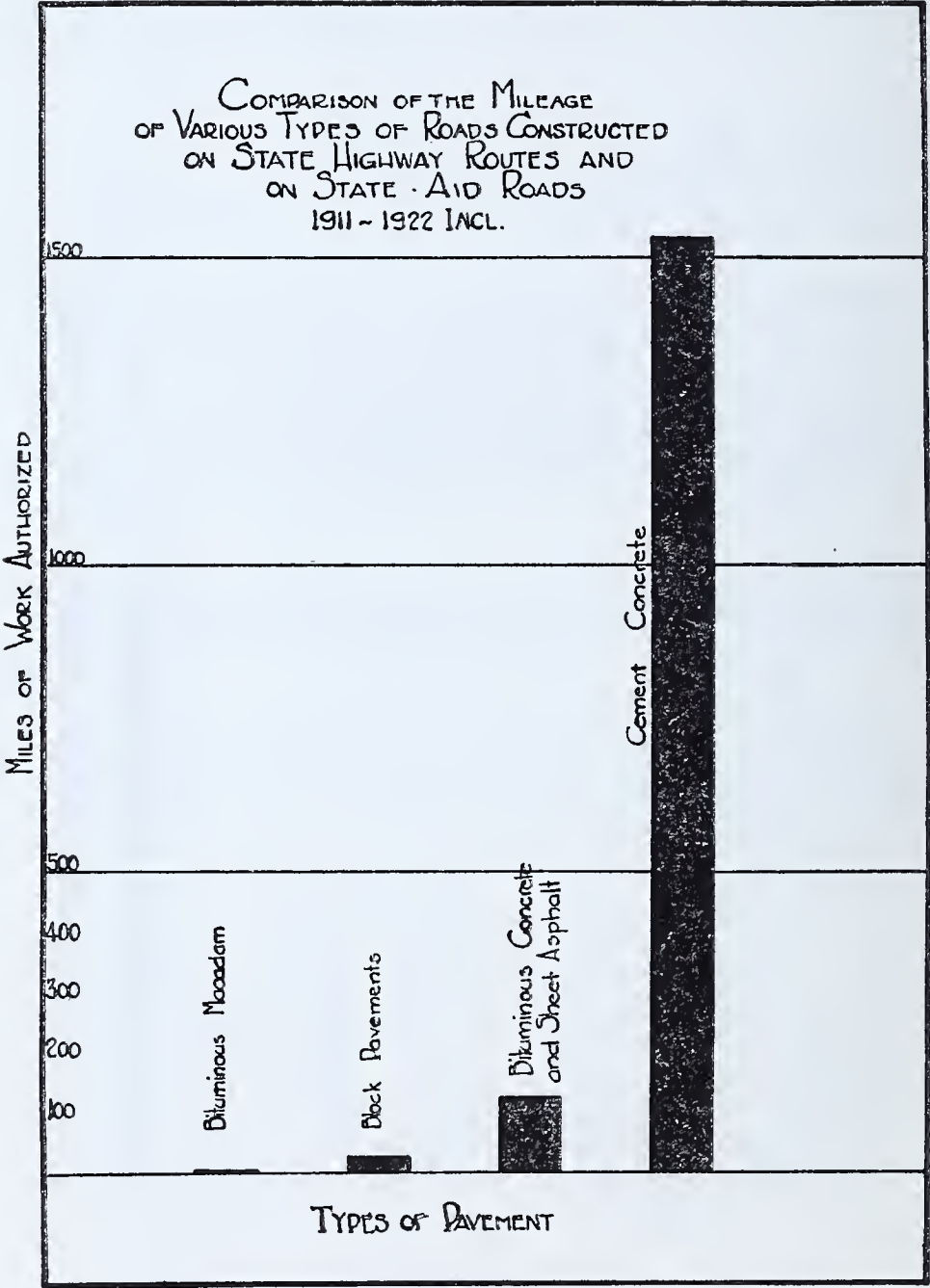
Distributing Motor Licenses.

The efficient manner in which the Automobile Division handles the granting of licenses for motor vehicles is worthy of great praise.

Business Routine.

The systematic procedure governing the business routine of the Department reflects great credit on the management.





APPENDIX.

PART 1.

Provisions of Laws Governing the Operation of the State Highway Department.

Personnel.

The State Highway Commissioner is appointed by the Governor and he is empowered to appoint an Assistant State Highway Commissioner, a Township Commissioner, a Chief Engineer, an Executive Manager, a Registrar of Motor Vehicles and numerous other specified and unspecified employes, at salaries to be fixed by the State Highway Commissioner. The Commissioner is further empowered to prescribe the duties of all employes and to make rules and regulations for the conduct of the work of the department.

State Highway System.

The State Highway System has 375 routes, comprising 10,320 miles of roads. In addition to this the State Highway Commissioner can, with the consent of the Governor, add to the State Highway System any road leading from a State Highway to any state property maintained as an historical park or used for military purposes. He is also authorized to operate spur or branch roads to reach all the points named in the description of those State Highways which connect county seats.

RELOCATIONS.

The Commissioner has the power, with the consent of the Governor, in case he finds any part or portion of the State Highway as described by law, is dangerous or inconvenient to the traveling public, either by reason of grades, dangerous turns or other local conditions, or that the cost of construction or of maintenance could be reduced by divergence from the course defined by law, to make a change in the State Highway route; and the portion of the old road which is abandoned may be declared vacated or closed to the public.

FREEING OF TOLL-ROADS AND TOLL-BRIDGES.

The Commissioner is authorized, with the consent of the Governor, to purchase all toll-roads and toll-bridges on State Highway

Routes. The counties are required by law to pay one-half of the expense of freeing toll-bridges, and are authorized by law, together with the townships and boroughs, to contribute to the freeing of toll-roads.

USE OF ABANDONED CANALS OR RAILROADS.

The State Highway Commissioner is authorized to purchase abandoned canal or railroad rights of way, to relocate State Highways, or to condemn such property in the same manner as toll-roads or toll-bridges.

CITY AND BOROUGH ROADS.

The law provides that the State Highway System shall not interfere with roads or streets in any of the cities, boroughs or incorporated towns of the Commonwealth. The State Highway Commissioner, however, is given the discretion of placing under the jurisdiction of his department roads, forming a part of any State Highway within the limits of a borough or incorporated town, that are not paved in accordance with the standards of the State Highway Department.

Many of the boroughs have neglected the upkeep of roads they are supposed to maintain and which form part of State Highway routes. Special appropriations were made by the Legislature in 1919 and 1921 for maintenance work on State Highway routes in boroughs. The department endeavors to get the boroughs to contribute toward defraying the expense of this maintenance work.

Duties and Powers of the State Highway Department.

The State Highway Department is directed by law to construct, reconstruct and maintain roads designated as State Highways; also any causeways or bridges, etc., on State Highway routes, except certain county bridges on State Highway routes.

PURCHASE AND OPERATION OF QUARRIES, AND THE MANUFACTURE OF MATERIAL, EQUIPMENT, ETC.

The State Highway Department is authorized to purchase and operate stone quarries and equipment, and to manufacture and purchase materials for use on the State Highways.

FIXING WIDTHS AND LINES OF STATE HIGHWAYS.

The State Highway Commissioner is empowered, with the approval of the Governor, to establish the width and lines of any State Highway. The law provides that no landowner or tenant shall erect any buildings or make any improvements within the limits of any State Highway after the width and lines have been established and recorded, and if such improvements shall be made thereafter no allowance will be made therefor by the assessment of damages. The minimum width of public roads, fixed by law, is 33 feet, and the maximum width 120 feet.

COUNTIES PAY DAMAGE CLAIMS.

The law provides that the State Highway Commissioner shall notify the County Commissioners of any contemplated change in the existing lines or location of a State Highway route, whereupon the County Commissioners shall enter into agreement with the landowners, or shall pay such damages as shall be ascertained according to the regular procedure for the assessment of damages in the opening of public highways. The State Highway Commissioner is empowered, however, to proceed with any contemplated construction of the roads in question without waiting upon the settlement of damage claims.

METHODS OF PERFORMING WORK.

The State Highway Commissioner can construct or reconstruct highways by contracts to be awarded to the lowest responsible bidder, or construct or reconstruct highways under his jurisdiction by State labor. The Governor is required to approve all contracts for construction or reconstruction.

The Commissioner is given the power to maintain any State Highway by contract or with State Highway forces.

State-aid Road Construction and Maintenance.

A State-aid road is one that is constructed and maintained jointly by the state and a county, township or borough. There are 457 miles of State-aid roads *off* the State Highway System and about 700 miles *on* the system. Fifty per cent of the cost of the construction of State-aid roads *off* the State Highway System is paid by the State, and fifty percent by the local authorities.

The law provides that the cost of construction of State-aid roads *on* the State Highway System shall be upon this same basis or upon such other terms as may be agreed upon. State-aid appropriations are distributed among the counties in proportion to the mileage of Township and County Roads.

The work of maintaining and repairing all State-aid Highways is done by the State Highway Department, and 50 percent of the cost is paid by the local political subdivisions which participated in the agreement for the construction of the roads if the roads are *off* the State Highway System.

Jurisdiction Over State Highways.

The State Highway Commissioner has complete jurisdiction over the State Highways. He is permitted to make reasonable rules and regulations covering the use of the State Highways, to protect them from destruction or injury. He controls their use for the construction of railroads, street railway tracks, pipe lines, conduits, and for the erection of light, telephone and telegraph poles. He has power to plant trees along the highways, and to erect signs, giving directions and distances.

The Township Reward Plan.

In order to encourage the improvement of roads in townships of the second class a definite reward is provided for certain types of road improvement work which must be performed under specifications acceptable to the State Highway Department, and the work must be approved by the department before certification is made for the payment of the reward.

APPORTIONMENT OF APPROPRIATIONS FOR TOWNSHIP REWARD.

The money appropriated by the Legislature is first apportioned among the several counties in proportion to the number of miles of township roads located in townships of the second class. The law states that not more than 15 percent of any county apportionment shall be available in any one township in that county, unless, after all the applications from the several townships of second class have been considered, there is an excess that has not been applied

for, which excess shall be apportioned among the townships that apply for more than 15 percent of the county apportionment. An excess in any county may similarly be apportioned to those counties which apply for a sum greater than the amount originally apportioned. Applications for the receiving of township reward money must be made by the township supervisors annually before the first of May.

GENERAL SPECIFICATIONS AND AMOUNT OF REWARDS.

Rewards are not granted by the state for road improvement work less than one-quarter mile in length, or where the width improved is less than 12 feet. The following schedule of reward payments is now in operation, and is based upon an improved road width of 16 feet. The prices given must be correspondingly reduced or increased as the width of the improved road is less or greater than 16 feet.

(a) Fifty percent of the cost of grading and draining a road, not to exceed \$600 per mile.

(b) Fifty percent of the cost of applying gravel or cinders to a graded and drained road, not to exceed \$1,500 per mile.

(c) Fifty percent of the cost of constructing a road with broken stone base and broken stone, slag, gravel, cinders or other approved material as a surface, not to exceed \$3,000 per mile.

(d) Fifty percent of the cost of macadamizing a road or for constructing a Telford macadam road, not to exceed \$4,000 per mile.

(e) Fifty percent of the cost of constructing a concrete, brick or bituminous surfaced road, not to exceed \$6,000 per mile.

(f) Fifty percent of the contract price and not to exceed 50 percent of the cost, if constructed by the township supervisors, of the erection of bridges 3 feet or more in span constructed of concrete or stone, or of steel with a floor of a material approved by the State Highway Department.

(g) Fifty percent of the purchase price of culvert pipe or drain pipe.

Powers of the Township Division.

Under the provisions of law the Township Commissioner, under the direction of the State Highway Commissioner, has general supervision of all township highways and bridges and is directed to compel compliance with the laws, rules and regulations relating thereto on the part of the township highway officers. The law states that the Township Commissioner shall approve plans and specifications, and estimates for the erection and repair of township bridges and culverts and for the construction and maintenance of township highways. The law does not state specifically whether these duties apply to townships of both the first and second class, but it places control of the road work in second-class townships under the Township Commissioner, whom it empowers "to approve or disapprove all agreements and contracts made by township supervisors for the expenditure of township money. . . ." The activities of the Township Division have been devoted almost entirely to second-class townships.

REPORTS FROM TOWNSHIP SUPERVISORS.

The department prescribes the method of keeping accounts, in townships of the second class, of moneys received and expended for activities relating to the township road systems. Township supervisors are required by law to make returns of, and to account for, all the money expended in road work according to instructions and regulations of the State Highway Department.

APPROVAL OF CONTRACTS AND PURCHASES.

No contract, in a township of the second class, for the construction or reconstruction of roads or for the purchase of materials used in such work or for the purchase of material, equipment or machinery, shall be valid unless approved by the Township Commissioner before being executed.

No payment can be made for road work done under contract until an estimate has been made of the work done and it has been approved by the Township Commissioner. The State Highway Department is empowered to prescribe the restrictions or regulations under which public utility facilities shall be constructed or erected in, under or upon any township highway.

Laws Governing Road Work Performed by Counties.

The law provides that the State Highway Department shall assume jurisdiction over county road construction, except in cases where the moneys are used on roads that are owned by the counties.

Elimination of Grade Crossings.

The State may pay as high as one-third of the cost of the elimination of a grade crossing, on a State Highway Route and the balance is assessed against the community interested and the railroad. Orders for Grade Crossing Elimination are issued by the Public Service Commission.

Laws Governing the Operation of Motor Vehicles.

The State Highway Department is charged with the duty of issuing licenses for the operation of motor vehicles and traction engines.

The function of the State Highway Department in the enforcement of the Motor Vehicles Laws is that of issuing the motor license and the driver's license, and of revoking these licenses for cause.

The State Highway Department also acts as an agent of the State in the registration of self-propelled traction engines or tractors equipped with metal-tired wheels, and in the issuance of drivers' licenses for their operation.

The following are provisions of the law with respect to weights, speed and license fees of motor vehicles.

USE OF MUFFLERS AND CHAINS:

WEIGHTS, LENGTHS AND WIDTHS OF COMMERCIAL VEHICLES.

"No motor vehicle of any description shall be used or operated on the public highways unless the engine be muffled so that the explosions thereof shall not constitute a nuisance to the public; and no muffler cut-out shall be used on any public highway.

"No motor vehicle shall be used upon any public highway with chains or other devices projecting more than one (1) inch upon the tires thereof.

“No commercial motor vehicle shall be used or operated on any public highway, the weight of which, including chassis, body, and load, shall be in excess of seven thousand (7,000) pounds for a vehicle in class AA, eleven thousand (11,000) pounds for a vehicle in class A, thirteen thousand (13,000) pounds for a vehicle in class B, eighteen thousand (18,000) pounds for a vehicle in class C, twenty-two thousand (22,000) pounds for a vehicle in class D, and twenty-five thousand (25,000) pounds for a vehicle in class F, and no commercial motor vehicle, the chassis of which weighs less than two thousand (2,000) pounds, shall be used or operated on any public highway when the weight of said chassis, body, and load combined exceeds five thousand (5,000) pounds.

“No motor vehicle or trailer shall be operated upon any public highway, having a gross weight of vehicle and load combined in excess of twenty-six thousand (26,000) pounds, or in excess of nineteen thousand five hundred (19,500) pounds on any axle, or in excess of eight hundred (800) pounds on any one wheel for each nominal inch of width of tire on such wheel, or that exceeds an over-all length of vehicle of three hundred and thirty-six (336) inches, except hook-and-ladder trucks and water towers, or any over-all width of vehicle and load of ninety (90) inches. All commercial vehicles or trailers, registered under this act, shall have painted, on a conspicuous place on the outside and on both sides of said vehicle or trailer, the maximum weight limit of said vehicle or trailer, including chassis, body, and load, in figures three (3) inches high.”

SPEED LIMITS.

“No person shall operate a motor vehicle on the public highways of the State recklessly or at a rate of speed greater than is reasonable and proper, having regard to the width, traffic, and use of the highway, or so as to endanger property or the life or limb of any person. No person shall drive a motor vehicle at a rate of speed exceeding one (1) mile in two (2) minutes; and no commercial motor vehicle, with solid rubber tires, in class AA, as provided in section nine of this act, shall at any time exceed a rate of speed of twenty (20) miles per hour; or

In class A, a rate of speed of twenty (20) miles per hour; or

In class B, a rate of speed of eighteen (18) miles per hour; or

In class C, a rate of speed of fifteen (15) miles per hour; or

In class D, a rate of speed of fifteen (15) miles per hour; or
 In class E, a rate of speed of twelve (12) miles per hour; or
 In class F, a rate of speed of ten (10) miles per hour; and no commercial motor vehicle with solid rubber tires, the chassis of which weighs less than two thousand (2,000) pounds, shall at any time exceed a rate of speed of twenty-four (24) miles per hour.

“No commercial motor vehicle, with pneumatic tire, in class AA, as provided in section nine of this act, shall, at any time, exceed a rate of speed of twenty-four (24) miles per hour; or

In class A, a rate of speed of twenty-four (24) miles per hour; or

In class B, a rate of speed of twenty-two (22) miles per hour; or

In class C, a rate of speed of nineteen (19) miles per hour; or

In class D, a rate of speed of nineteen (19) miles per hour; or

In class E, a rate of speed of sixteen (16) miles per hour; or

“In class F, a rate of speed of fourteen (14) miles per hour; and no commercial motor vehicle with pneumatic tires, the chassis of which weighs less than two thousand (2,000) pounds, shall, at any time, exceed a rate of speed of twenty-six (26) miles per hour:

“Provided, That the authorities having charge of the highways may, in dangerous or built-up sections or at schoolhouses, churches and public playgrounds, place signs marked ‘fifteen (15) mile speed limit,’ in letters not less than five (5) inches in height. Such of these signs as are placed at the entrance to the city, borough, town, or village of the highways that are State highways shall also bear the name of the city, borough, town or village, in letters of the same size. Said signs shall be placed on the right-hand side of the highway, facing the traffic to be controlled, clearly legible therefrom, and at these places the speed limit shall not exceed a rate of one (1) mile in four (4) minutes for a distance beyond said sign of not more than one-eighth ($\frac{1}{8}$) of a mile; and, if such highway is still in a dangerous or built-up section, a second sign, similar to the above described, may be erected, and the speed limit shall not exceed the rate of one (1) mile in four (4) minutes for not more than one-eighth ($\frac{1}{8}$) of a mile beyond said sign; and as many signs may be erected as may be necessary. At the end of said dangerous or built-up sections, there shall be erected a sign reading “end of fifteen (15) mile speed limit,” in letters not less than five (5) inches in height; and signs to be placed at right angles to the highway and facing the traffic to be controlled.”

LICENSE FEES.

“The fee for the registration of a motorcycle shall be three (3) dollars, and for the registration of a bicycle with a motor attached two (2) dollars.

“The fee for registration of motor vehicles, except such as are equipped with metal tires, when registered prior to August first of any year, shall be at the rate of forty (40) cents for each horsepower or fractional part thereof: Provided, That the minimum fee shall be ten (10) dollars.

“The fees for the registration of commercial motor vehicles the chassis of which weighs less than two thousand (2,000) pounds shall be on the basis of horsepower: Provided, That the minimum fee shall be fifteen (15) dollars.

“Commercial vehicles, with pneumatic tires, the chassis of which weighs two thousand (2,000) pounds or more, shall be divided into seven (7) classes.

“The fees for each such vehicle in class AA, the chassis of which weighs two thousand (2,000) pounds and less than three thousand (3,000) pounds, shall be twenty-four (24) dollars.

“The fee for each such vehicle in class A, the chassis of which weighs three thousand (3,000) pounds and less than four thousand (4,000) pounds, shall be thirty-two (32) dollars.

“The fee for each such vehicle in class B, the chassis of which weighs four thousand (4,000) pounds and less than five thousand (5,000) pounds, shall be forty (40) dollars.

“The fee for each such vehicle in class C, the chassis of which weighs five thousand (5,000) pounds and less than six thousand (6,000) pounds, shall be fifty-six (56) dollars.

“The fee for each such vehicle in class D, the chassis of which weighs six thousand (6,000) pounds, and less than seven thousand five hundred (7,500) pounds, shall be eighty (80) dollars.

“The fee for each such vehicle in class E, the chassis of which weighs seven thousand five hundred (7,500) pounds, and less than eight thousand five hundred (8,500) pounds, shall be one hundred (100) dollars.

“The fee for each such vehicle in class F, the chassis of which weighs over eight thousand five hundred (8,500) pounds, shall be one hundred forty (140) dollars.

"Commercial vehicles, with solid rubber tires, the chassis of which weighs two thousand (2,000) pounds or over, shall be divided into seven (7) classes.

"The fees for each such vehicle in class AA, the chassis of which weighs two thousand (2,000) pounds and less than three thousand (3,000) pounds, shall be thirty (30) dollars.

"The fee for each such vehicle in class A, the chassis of which weighs three thousand (3,000) pounds and less than four thousand (4,000) pounds, shall be forty (40) dollars.

"The fee for each such vehicle in class B, the chassis of which weighs four thousand (4,000) pounds and less than five thousand (5,000) pounds, shall be fifty (50) dollars.

"The fee for each such vehicle in class C, the chassis of which weighs five thousand (5,000) pounds and less than six thousand (6,000) pounds, shall be seventy (70) dollars.

"The fee for each such vehicle in class D, the chassis of which weighs six thousand (6,000) pounds and less than seven thousand five hundred (7,500) pounds, shall be one hundred (100) dollars.

"The fee for each such vehicle in class E, the chassis of which weighs seven thousand five hundred (7,500) pounds and less than eight thousand five hundred (8,500) pounds, shall be one hundred twenty-five (125) dollars.

"The fee for each such vehicle in class F, the chassis of which weighs eight thousand five hundred (8,500) pounds or over, shall be two hundred (200) dollars.

"The fees for registration of electrically operated commercial motor vehicles, whether equipped with pneumatic or solid rubber tires shall be on the same basis as the fees specified in this section for commercial motor vehicles with pneumatic tires.

"Tractor trucks with semi-trailer attachments shall be registered as one vehicle, the registration fee for which shall be computed according to the table of weights and fees specified in this act for commercial motor vehicles, and upon the basis of the chassis weight of tractor plus the weight of semi-trailer attachment.

"No registration shall be required of a trailer weighing less than five hundred (500) pounds.

"The fee shall be two (2) dollars for each trailer weighing five hundred (500) pounds and less than seven hundred and fifty (750) pounds.

“Five (5) dollars for each trailer weighing seven hundred and fifty (750) pounds and less than one thousand (1,000) pounds.

“Ten (10) dollars for each trailer weighing one thousand (1,000) pounds and less than two thousand (2,000) pounds.

“Fifteen (15) dollars for each trailer weighing two thousand (2,000) pounds or more.

“The fee for the registration of any motor vehicle or trailer equipped with metal tires shall be double the regular fee for such vehicle.

“The fees for registration when issued on or after August first shall be one-half those hereinbefore named.

“The fee shall be five (5) dollars for each certificate and number plate issued to persons registered as motorcycle dealers, and ten (10) dollars for each certificate and pair of number plates issued to persons registered as dealers in other motor vehicles.”

PART 2.

Financial.

I. Sources of Funds, Purposes for Which They Were Intended, and Purposes for Which They Were Used.

Money expended by the State Highway Department comes from four different sources:

- (A) Legislative appropriations.
- (B) Agreements with local governmental units of the State which participate in the construction or maintenance of roads.
- (C) The Federal government through its program of Federal aid in road improvement.
- (D) Contributions by individuals. (This source is relatively unimportant so far as the amount of money is concerned, and it will not be considered in the following discussion.)

(A) Legislative Appropriations.

Legislative appropriations in the past have been based on revenue received from three sources:

- (1) The general revenue of the Commonwealth.
- (2) The receipts from the licensing of motor vehicles.
- (3) The proceeds from the sale of highway bonds.

CLASSIFICATION OF APPROPRIATIONS.

The appropriations made to the State Highway Department may be classified according to the purposes of the appropriations, as:

- (a) For salaries, general expense, etc.
- (b) For improvement and maintenance of State Highways.
- (c) For improvement and maintenance of State-aid Highways.
- (d) For reward to townships for road improvement.
- (e) For purchase of turnpikes and toll bridges.
- (f) For property damage incurred by State Highway forces.

APPROPRIATIONS FROM GENERAL STATE REVENUE.

The 1921 Legislature eliminated all remaining salary rates except that of State Highway Commissioner, and empowered the department to fix salaries.

The State Highway Department is not confined to the General Salary and Expense Appropriation to meet the overhead costs. All of the principal appropriations carry a provision for the payment of engineering salaries, etc., to carry out the purposes of the appropriations.

The specific appropriations for general salary and expense lapse with the end of each appropriation period (a two-year period, from June 1 of each odd-numbered year to May 31 of the succeeding odd-numbered year), but the various construction or maintenance appropriations, from which certain salaries and expenses may be paid, do not lapse at the end of this period. From 1911 through 1921 specific appropriations for general salary and expense totalled \$10,870,500.50 after deducting small amounts which were not used within the appropriation periods.

State Highways.—Money appropriated for the construction of State Highways may be used only on State Highway routes, but it may be employed in projects where the State pays the entire cost, or under Federal-aid provisions, or with the participation of local governmental units (counties, townships or boroughs) on a basis of paying fifty percent of the cost, or upon such other terms as may be agreed upon. In any case, the State Highway Department handles the work the same as if the State were paying the entire cost.

From 1911 through 1921 a total of \$24,800,000 has been appropriated from the general State revenue for the construction or maintenance of State Highways. Of this total \$12,100,000 was designated for construction work, \$10,000,000 for construction or maintenance, and \$2,700,000 for maintenance. On September 30, 1922, \$3,544,186.20 of construction funds and \$285,637.82 of maintenance funds (for use in boroughs) were unavailable for the use of the department because of inadequate State revenue to support the appropriations.

State-aid Highways.—From 1903, when the State Highway Department was established, up to 1911, when the State Highway System was provided for, the work of the State Highway Department consisted largely of building State-aid roads. Upwards of 800 miles of State-aid roads were built prior to 1911, and some 500 miles were apportioned to the State Highway System by the Sproul

Highway Act. Under the provisions of the original Sproul Act, State-aid Highway construction (wherein the State paid fifty percent of the cost and local governmental units the remaining fifty percent) was limited to roads *not* within the State Highway System.

Owing to the desirability of securing local assistance in the improvement of State Highway routes, provision has been made for the improvement of State Highways under the State-aid plan, the State paying fifty percent of the cost, or upon other terms to be agreed upon. In 1917 State Highway funds as well as State-aid appropriations were made available for paying the State's share of joint construction on State Highway routes.

The following information supplied by the State Highway Department indicates the extent of road construction under State-aid provisions *on* the State Highway routes as compared with that on roads *off* the State Highway System.

	Total mileage State-aid work put under contract	Mileage State-aid work <i>on</i> State Highway System	Mileage State-aid work <i>off</i> State Highway System
1911-1914.....	197.69	77.89	119.80
1915-1918.....	51.97	43.17	8.80
1919-1922.....	163.51	89.63	73.88
Total.....	413.17	210.69	202.48

Thus it will be seen that since 1911 the State-aid funds have been used to build as many miles of road *on* the State Highway System as *off* that system.

Appropriations from the general State revenue for State-aid work from 1911 through 1921 have amounted to \$12,800,000, of which \$9,900,000 was earmarked for construction, \$2,000,000 for construction or maintenance, and \$900,000 (1919 and 1921) for maintenance. On September 30, 1922, \$6,658,581.18 of construction funds and \$157,738.24 of maintenance funds were unavailable for the use of the department because of inadequate State revenue to support the appropriations.

State-aid appropriations are apportioned to the several counties according to the mileage of township and county roads. The law has been complied with so far as could be ascertained, except for a

short period just prior to 1915. At that time certain counties were permitted to exceed their allotments, and the total sum of \$460,-955.75—which was involved—was deducted in 1915 from a balance of \$924,153.24 which remained to the credit of other counties. The legality of this adjustment is questionable.

Township Reward.—Since 1907 appropriations have been made by each Legislature from the general revenue of the State to encourage road work in townships of the second class. The present law, passed in 1919, provides for a reward to the townships of the second class for making improvements of certain specified kinds.

Appropriations totaling \$2,000,000 were made by the 1919 and 1921 Legislatures, but on October 31, 1922, the sum of \$1,329,-279.98 was unavailable for use because of the treasury deficit. On November 16, 1922, total payments of \$686,597.09 were due the townships for work completed but were held up because there were no funds to pay them. Altogether the townships have been promised assistance to a total amount of \$1,525,743.63, of which \$1,351,765.63 is for work completed to November 16, 1922.

Toll Road Purchase.—Provision was made in the Sproul Highway Act for the purchase of turnpikes and toll-bridges at the joint expense of the State and of the local governmental units. Appropriations to pay the State's share of such cost were made in 1913, 1915, 1917 and 1919 to a total of \$1,374,000. The toll roads on the State Highway System have all been purchased.

RECEIPTS FROM LICENSING OF MOTOR VEHICLES.

In 1919 the use of the revenue from the motor law was narrowed considerably, and the proceeds were specifically appropriated to the State Highway Department "for the purpose of assisting in the maintenance and repair of State Highways."

In 1921 the Legislature appropriated the motor license fees to the department "for the purpose of assisting in the construction, maintenance, improvement and repair of State Highways and State-aid Highways." It was further provided "that the motor vehicle fees hereby dedicated to the State Highway Department shall include the payment of any and all expenses necessary to carry out the purpose of the several Acts of Assembly pertaining

to the operation of the State Highway Department and the construction and maintenance of State Highways and State-aid Highways, and for the payment of salaries and traveling expenses of any employes necessary in the judgment of the State Highway Commissioner to effectually carry on the work of the State Highway Department." Thus the Motor Fund may now be used for almost any purpose for which the department may incur expense.

In 1920 \$89,536.70 from the Motor Fund was expended for road and bridge construction by State Highway Department forces, and in 1921 \$498,655.58, chiefly by State forces; while up to September 30, 1922, an additional total of \$4,250,853.90 had been authorized for road and bridge construction work, all but \$46,414.85 of which was for work to be performed by State forces. It had also been necessary in 1922, up to September 30, to authorize the use of \$366,600.76 for maintenance of State-aid roads and \$267,-265.73 for maintenance of State Highways in boroughs from the Motor Fund, because of the unavailability of legislative appropriations based on general State revenue from which such work would normally be performed.

The Motor Fund has been used for such purposes as erecting an office building for the automobile division, building a garage for the highway trucks, buying motorcycles and motor cars for the State Police, paying the expenses toward floating the bond issue, and for the elimination of grade crossings. While under a broader interpretation of the law these expenditures were justified, still it would seem that some of these expenditures should be taken care of by legislative appropriations for the purposes enumerated. These questions, however, will all be threshed out and taken care of under a State budget system.

Amount of Receipts.—The term "Motor Fund" is used to include not only the receipts from the operation of the various motor vehicle laws but also of the laws which regulate the operation of traction engines. The provisions under which these latter receipts are appropriated to the State Highway Department vary somewhat from those described above for the motor receipts proper, but they have practically the same meaning. The annual receipts by the State from these various license and registration laws since 1906 are given in Table 1. All money collected

from registration and license fees and from fines and penalties and forfeited bail is paid to the State treasury except that money collected for violation of the provisions of the law as to the speed or weight of motor vehicles, which is paid to the treasurer of the city, borough, town or township wherein the violations occurred, and is to be used for the construction, repair or maintenance of the highways in such jurisdictions.

TABLE 1.
STATEMENT OF MOTOR RECEIPTS
1906-1922, INCLUSIVE.

Year	Amount
1906.....	\$42,460.42
1907.....	59,604.91
1908.....	83,520.69
1909.....	126,953.95
1910.....	321,989.12
1911.....	429,523.50
1912.....	597,723.19
1913.....	841,069.41
1914.....	1,184,646.50
1915.....	1,665,276.50
1916.....	2,325,056.50
1917.....	3,268,025.50
1918.....	4,048,185.50
1919.....	5,316,614.51
1920.....	8,091,845.65
1921.....	9,447,761.94
1922 (to November 13, 1922).....	12,426,377.95
	<hr/>
	\$50,276,635.74

PROCEEDS FROM SALE OF HIGHWAY BONDS.

At the general election in 1918 the electorate of the State approved an amendment to the State Constitution which provided that the General Assembly could authorize the issuance of bonds to an amount of \$50,000,000 "for the purpose of improving and rebuilding the highways of the Commonwealth." Accordingly, the proper administrative officials were authorized to issue not exceeding \$50,000,000 of bonds, the proceeds from which should

be "specifically appropriated to the State Highway Department or improving and rebuilding the highways of the Commonwealth." The proceeds from the sale of the bonds were set aside in a separate fund.

The Highway bonds were sold in three issues, one each in 1919, 1920 and 1921, the first issue maturing at intervals over a period of thirty years, and the other two issues maturing in thirty years, the maximum period permitted by the legislative authorization. A premium of \$906,873 was obtained on the three issues, which, together with accrued interest and interest secured from deposits of the fund, has made a total amount of \$51,509,036 available for use of the State Highway Department through October 31, 1922.

While the wording of both the constitutional amendment and the appropriation bill is quite general in character and makes it possible to use the Bond Fund on any roads which it is proper for the State Highway Department to improve or rebuild, including possibly roads *off* the State Highway System which are improved through State-aid provisions, it was the general understanding throughout the State that the Bond Fund was to be used for the improvement or reconstruction of State Highways.

Use of Bond Money.—In the main the bond money has been used on the primary system. Examination of the contract records, however, shows that a sum of \$1,975,834.55 was allotted for improvement of roads on the secondary system. Also, expenditures of \$7,281,397.31 have been authorized from the Bond Fund to pay for work on projects originally authorized in 1921 from State Highway or State-aid Highway appropriations—which were unavailable due to the shortage of cash in the general fund. This transfer of cash was begun in June, 1921, but, since it was hoped that receipts from taxation would make it possible to reimburse the Bond Fund, the monthly financial reports of the department did not show this transfer of cash. These hopes were not realized, and before the books of the State Highway Department were closed for 1921 the authorizations of these projects were actually transferred to the Bond Fund.

Of the \$7,281,397.31 of bond money that has been so authorized, \$3,652,047.80 should have been paid from State Highway appropriations and \$3,629,349.51 from State-aid Highway appropriations. The State-aid projects involved road construction on the

secondary State Highway System or on roads entirely off the system. The 28 State Highway projects involved 8.86 miles of road construction on primary routes and 68.53 miles on secondary routes. On 11 of these projects agreements had been made with the counties to pay 50% of the cost. These contributions and the payments by local governmental units on the State-aid projects will return \$2,934,713.06 to the Bond Fund, so that \$4,346,684.25 represents the amount of bond money used under this transfer of authorizations to cover road work principally on secondary routes.

(B) Agreements With Local Governmental Units.

Under several provisions of law the State Highway Department is empowered to enter into agreements with certain local governmental units (counties, townships and boroughs) for the construction or maintenance of roads at the joint expense of the State and these local governmental units. In all cases the State Highway Department handles the planning, execution and payment of the work as though the State were paying the entire cost, but the local governmental units are currently furnished with certifications of their share of the total cost. The State is thus reimbursed when the local governmental units make payment to the State of the amounts of these certifications, which are credited by the State Treasurer to the particular fund out of which the work was financed.

The local agreements and minor miscellaneous collections have amounted to \$15,971,511.67 from 1911 to September 30, 1922, and have therefore constituted a very important item in the total of the funds available to the department.

(C) Assistance From the Federal Government in the Construction of Roads Through Federal-aid Provisions.

Federal assistance in the construction of roads on the State Highway System has been available each year since 1917. Pennsylvania receives an apportionment of the total Federal-aid appropriation by Congress in a manner similar to that in which each county in Pennsylvania receives an apportionment of the total State-aid appropriation made by the State Legislature. The State Highway Department makes application to the Federal Govern-

ment and enters into an agreement for each construction project where Federal-aid money is to be received, the Federal Government making payment as the work is completed.

The Federal-aid apportionment to the various States of the appropriations made by Congress is arrived at on the following basis:

A deduction of not exceeding three percent by the Bureau of Public Roads is made from the total appropriation for administering the provisions of the Act. After this deduction the appropriation is apportioned on the basis of one-third in the ratio which the area of each State bears to the total area of all the States; one-third in the ratio which the population of each State bears to the total population of all the States; and one-third in the ratio which the mileage of rural delivery routes and star routes in each State bears to the total mileage of rural delivery and star routes in all the States.

PENNSYLVANIA FEDERAL-AID SYSTEM.

The recent Federal-aid Act provides that Federal-aid money be expended on a system of interstate and secondary routes, the total of which shall not exceed seven percent of the total mileage of all roads in each State. Not exceeding three percent of this mileage must cover interstate routes and four percent secondary routes.

The Federal-aid money is all used on the Primary System. In view of this fact there is no attempt made to use a portion of the Federal-aid funds in each county. The Federal-aid funds are pooled with the State's funds available for the Primary System, which comprises 3970 miles, of which 2495 miles are interstate routes and 1475 miles secondary routes.

FEDERAL-AID FUNDS.

The first receipts from Federal-aid agreements were received in 1918. Since that time there has been a steady inflow of money from this source, which has been a very important one among the several sources of money for road work. Including an apportionment of \$2,265,969, which was made effective July 1, 1922, a total of \$18,297,567.26 has been apportioned to the State of Pennsylvania since 1917, when the Federal-aid law took effect. Up to October 31, 1922, Federal-aid projects amounting to \$16,040,016.41

had been authorized by the Bureau of Public Roads in Washington while authorization was being sought for projects amounting to \$487,223.75. The department has also been informed that an apportionment of \$2,946,670 will be available after July 1, 1923, and an apportionment of \$3,398,954 after July 1, 1924. Under the provisions of the July 1, 1922, apportionment the Federal Government agrees to pay 50 percent of the cost of the road construction, but not to exceed \$16,250 per mile. The prior apportionment carried a maximum limit of \$20,000 per mile.

Summary of Funds Available.

The total amount of money for the use of the State Highway Department from 1911 through 1922 has been \$191,355,776.82. On September 30, 1922, a sum of \$11,982,417.99 was unavailable from legislative appropriations made from the general State revenue because of the treasury deficit, so that only \$179,373,358.83 has been available to the department since 1911. The following tabulation shows how this amount was contributed from the several sources of funds discussed above.

TABLE 2.

SUMMARIZED SOURCES OF FUNDS, 1911-1922, INCLUSIVE. (1)

(A) Legislative Appropriations	
(1) From general State revenue (including balance from 1907-1910).....	\$57,412,893.92
(2) From motor license receipts.....	49,935,094.47
(3) From highway bonds.....	51,509,036.60
(B) Agreements with Local Authorities (and miscellaneous collections).....	
	15,971,511.67
(C) Federal Aid.....	
	16,527,240.16
	<hr/>
	\$191,355,776.82
Less amounts of appropriations from general revenue not available for use September 30, 1922.....	11,982,417.99
	<hr/>
	\$179,373,358.83

(1) Up to and including receipts for September 30, 1922, except for bond money interest and Federal-aid projects which are included through October 31, 1922.

TABLE 3.
SOURCES OF FUNDS BY SUCCESSIVE
ADMINISTRATIONS, 1911-1922, INCLUSIVE.

	1911-1914	1915-1918	1919-1922 (1)
<i>Balance from Preceding Administration</i>	\$660,642.28	\$493,084.50	\$6,540,254.19
<i>Legislative Appropriations From General State Revenue</i>	11,995,073.01	18,077,514.38	(14,697,246.26) (2)
<i>From Motor Licenses</i>	3,384,646.50	11,494,322.92	26,679,664.25
<i>From Highway Bonds</i>	0.00	0.00	35,056,125.05
<i>Agreements with Local Authorities (and Miscellaneous Collections)</i> ..	1,685,548.77	4,858,391.07	51,509,036.60
<i>Federal-aid</i>	0.00	159,763.05	9,427,571.83
Total	\$17,725,910.56	\$35,083,075.92	\$145,580,129.03
Total 1911-1922			(133,597,711.04) (2)
			191,355,776.82
			(179,373,358.83) (2)

(1) Up to and including receipts for September 30, 1922, except for bond money interest and Federal-aid projects which are included through October 31, 1922.

(2) Subtracting \$11,982,417.99 unavailable on September 30, 1922, because of the treasury deficit, as follows:

State Highway Appropriations, 1917, 1919 and 1921.....	\$3,544,186.20
State-aid " " " " " "	6,658,581.18
Maintenance (Borough Aid) Appropriation, 1921.....	285,637.82
Maintenance (State Aid) " 1919 and 1921..	157,738.24
Township Reward " 1919 and 1921..	1,336,274.55
Total	\$11,982,417.99

Summary of Expenditures.

Of the total of \$191,355,776.82 for the use of the department from 1911 through 1922, it is estimated that \$174,121,178.21 will be expended by December 31, 1922, leaving a balance of \$17,234,598.61 for the next administration. This balance includes the sum of \$11,982,417.99 which was unavailable in general fund appropriations because of the treasury deficit and about \$4,000,000 of the remaining balance is obligated for the payment of existing contracts, etc. The amount available in each administration, the expenditures and balance carried over, are given in detail in Table 4, together with explanatory notes as to how these figures were obtained.

TABLE 4.

TOTAL EXPENDITURES BY SUCCESSIVE ADMINISTRATIONS, 1911-1922,
INCLUSIVE.

	Funds ⁽¹⁾	Expenditures	Balance remaining
1911-1914....	\$17,725,910.56	\$17,232,826.06	\$493,084.50
1915-1918....	35,083,075.92	28,542,821.73	6,540,254.19
1919-1923....	145,580,129.03 ⁽³⁾	128,345,530.42 ⁽²⁾	17,234,598.61 ⁽⁴⁾
1911-1922....	\$191,355,766.82 ³	\$174,121,178.21	\$17,234,598.61 ⁽⁴⁾

(1) Includes balance from preceding administration, appropriations, additions by agreements with Federal government or local authorities, miscellaneous collections, with deduction of amounts of appropriations which merged.

(2) Estimated by assuming that authorizations made through September 30, 1922, would be spent except for \$4,000,000.

(3) Not allowing for receipts from 1922 motor licenses after September 30, 1922, nor any receipts for 1923 licenses, but including interest on bond money through October 31, 1922.

(4) Includes a total of \$11,982,417.99 unavailable on September 30, 1922, in appropriations from general state revenue because of the treasury deficit.

Purposes of Appropriations and Expenditures.

Since January 1, 1921, under the new bookkeeping and accounting procedure instituted by the department, it has been possible to determine definitely the purposes for which expenditures have been made from the various legislative appropriations. The department has also made an analysis of the classification of expenditures for 1919 and 1920 but states that prior to 1919 it would not be possible to classify the expenditures except by a detailed audit which would require considerable expenditure of time and money, and would hardly be justifiable. The tabulation in Table 5 indicates the general purpose of the various funds available to the department. Assuming that these funds were spent for the purposes named, it is possible to draw certain general information as to the uses for which the money appropriated to the Department from 1911 through 1922 has been expended. The information in Table 5 is summarized in Table 6 according to the major items of expenditure. It shows that over \$140,000,000 was spent on State Highway construction and maintenance, about \$15,000,000 on State-aid Highway construction and maintenance, and other amounts for township bonus and reward, turnpike purchase, etc. In addition to the responsibility for the direct expenditure of \$178,121,178.21, the Department has also supervised the expenditure of \$17,914,708.48 of contracts awarded for the counties, making a grand total of \$196,035,886.69 for the twelve years 1911 to 1922, inclusive.

TABLE 5.
FUNDS AVAILABLE AND EXPENDITURES, 1911-1922, INCLUSIVE.
SHOWING PURPOSES FOR WHICH MONEY WAS INTENDED AND ESTIMATED BALANCES DECEMBER 31, 1922.

LEGISLATIVE APPROPRIATIONS	Amount Appropriated 1911-1922 (1)	Additions, Local or Federal- aid, etc. (2)	Total Available	Authorizations made to December 31, 1922 (7)	Unauthorized Balances December 31, 1922 (6)
<i>General State Revenue</i>					
State Highway— Construction.....	\$12,100,000.00	\$4,486,323.01	\$16,586,323.01	\$13,020,085.28	\$3,566,237.73(6)
State Highway— Construction and Maintenance.....	10,000,000.00	101,900.66	10,101,900.66	10,101,900.66	0.00
State Highway— Maintenance.....	2,700,000.00	659.94	2,700,659.94	2,415,022.12	285,637.82(6)
State Highway— Total.....	24,800,000.00	4,588,883.61	29,388,883.61	25,537,008.06	3,851,875.55
State-aid— Construction.....	10,560,642.28(2)	4,081,195.56	14,641,837.84	7,894,271.88	6,747,565.96
State-aid— Construction and Maintenance.....	2,000,000.00	2,438,896.83	4,418,896.83	4,418,896.83	0.00
State-aid— Maintenance.....	900,000.00	614,916.58	1,514,916.58	967,348.93	547,567.65(6)
State-aid— Total.....	13,460,642.28	7,145,008.97	20,575,651.25	13,280,517.64	7,295,133.61(6)
Township Bonus.....	6,930,403.31	2,659.10	6,933,062.41	6,933,062.41	0.00
Township Reward.....	2,000,000.00	238.64	2,000,238.64	663,964.09	1,336,274.55(6)
Turnpike Purchase.....	1,372,376.02	5,000.00	1,377,376.02	1,333,747.03	43,628.99
Property Damage.....	20,871.81	0.00	20,871.81	1,187.81	19,684.00
General Salary and Expense.....	10,870,500.50	541.88	10,871,042.38	10,183,040.47	688,001.91
War Emergency Fund.....	528,000.00	0.00	528,000.00	528,000.00	0.00
General State Revenue— Total.....	59,982,793.92 (—2,569,900.00)(3)	11,712,332.20	71,695,126.12	58,460,527.51	13,234,598.61(6)

<i>Motor License Receipts</i>					
State Highway—Maintenance.....	\$13,408,460.16	\$0.00	\$13,408,460.16	\$13,408,460.16	\$0.00
State Highway—Construction and Maintenance.....	1,700,000.00	0.00	1,700,000.00	1,700,000.00	0.00
State-aid—Construction and Maintenance.....	500,000.00	65,567.89	565,567.89	565,567.89	0.00
State Highway and State-aid—Construction and Maintenance.....	31,756,734.31	1,463,343.02	33,220,077.33	33,220,077.33	0.00
Motor License Receipts Total.....	47,365,194.47 (+2,569,900.00) ⁽⁴⁾	1,528,910.91	48,894,105.38	48,894,105.38	0.00
<i>Sale of Highway Bonds</i>	51,509,036.60	19,001,985.22	70,511,021.82	70,511,021.82	0.00
Grade Crossing Fund.....	.....	255,523.50	255,523.50	255,523.50	0.00
Grand Total.....	158,857,024.99	32,498,751.63	191,355,766.82	178,121,178.21	13,234,598.61 ⁽⁵⁾

(1) Including receipts from motor licenses through 9/30/22, but of interest on bond money through 10/31/22. In all general fund appropriations amounts which merged have been deducted.

(2) Includes balance of \$660,642.28 from 1907-1910 administration.

(3) Deducted because the 1915 appropriations were to that extent drawn from motor license receipts.

(4) Added for the reason given in (3).

(5) Including appropriations comprising Highway Deficit of \$11,982,417.99.

(6) Estimated.

(7) Includes all authorizations made up to September 30, 1922, with assumption that all motor receipts except 1923 receipts will be authorized for use in 1922, leaving no unauthorized balance on December 31, 1922.

(8) Through 9/30/22 except bond money where agreements are used through 10/31/22.

TABLE 6.
PURPOSES FOR WHICH MONEY WAS EXPENDED,
1911-1922, INCLUSIVE. ⁽¹⁾

State Highway Construction.....	\$85,594,249.77	
State Highway Construction and Maintenance.....	11,801,900.66	
State Highway Maintenance.....	45,318,782.60	
State Highway Construction and Maintenance.....		\$142,714,933.03 ⁽²⁾
State-Aid Highway Construction.....	9,288,640.49	
State-Aid Highway Construction or Maintenance....	4,984,464.72	
State-Aid Highway Maintenance.....	1,234,614.66	
State-Aid Highway Construction and Maintenance..		15,507,719.87 ⁽²⁾
Township Bonus.....		6,933,062.41
Township Reward.....		663,964.09
Turnpike Purchase.....		1,333,747.03
Property Damage.....		1,187.81
General Salary and Expense.....		10,183,040.47
War Emergency Fund.....		528,000.00
Grade Crossing Fund.....		255,523.50
Total Expenditures.....		\$178,121,178.21
County 100% Road Construction, 1919-1922, on Routes and off Routes Supervised by State High- way Department.....		17,914,708.48
Total.....		\$196,035,886.69

⁽¹⁾ Taken from Highway Department records—October, November and December, 1922, estimated—and includes Contract Authorizations that may not be paid until after January 1, 1923.

⁽²⁾ Salary and expense also paid from these funds.

Classification of Expenditures, 1919 - 1922, Inclusive.

In Table 7 the expenditures are distributed over the expense classification that is now used in the excellent accounting procedure installed under the present administration.

TABLE 7.
CLASSIFICATION OF EXPENDITURES EACH YEAR 1919 THROUGH 1922. (1)

	1919	1920	1921	1922	1919-1922
Indirect Expense.....	\$975,449.57	\$1,693,262.71	\$1,672,842.64	\$1,721,678.23	\$6,063,233.15
Engineering and Inspection.....	.....	.....	1,106,521.89	1,353,762.81	2,460,284.70
Improvement of Roads.....	9,928,638.38	15,964,753.57 (2)	24,522,545.78	18,154,893.28	68,570,871.01
Reconstruction of Roads.....	1,198,103.71	3,377,121.52	4,918,082.81	3,404,580.88	12,897,888.92
Construction of Bridges.....	412,638.77	468,852.71	344,400.53	612,186.50	1,838,078.51
General Repairs—					
Roads and Bridges.....	2,758,173.11	3,377,036.45	3,761,309.48	3,506,581.14	13,403,100.18
Surface Treatment Roads.....	1,114,403.77	1,158,764.23	1,489,908.47	1,395,193.98	5,158,270.45
Resurfacing of Roads.....	1,596,321.94	1,597,519.45	3,400,885.40	3,220,944.86	10,195,771.65
Turnpike Purchase.....	197,360.06	96,118.73	148,758.96	16.15	442,253.90
Stores.....	.....	.....	245,362.42	33,161.19	278,523.61
Equipment Purchase.....	504,359.79	700,854.90	358,991.01	224,402.41	1,788,608.11
Equipment Maintenance.....	.....	.....	556,529.95 (3)	385,196.45 (3)	941,726.40 (3)
County Map Survey.....	5,085.95	14,777.63	17,129.88	.....	37,174.10
Township Reward and Bonus.....	1,135,431.08	170,639.60	451,778.55	41,545.34	1,799,394.57
Unaccounted for.....	.....	.....	780.20	.....	780.20
Applicable to 1918.....	2,469,570.96	.....	.....	.....	2,469,570.96
Totals.....	\$22,675,537.09	\$28,619,701.50	\$42,995,927.97	\$34,054,363.86	\$128,345,530.42

(1) Expenditures estimated for 1922 using Table 5 as basis.

(2) Included in construction expenditures is \$614,238.93 for 1919 and \$1,040,253.99 for 1920.

(3) Does not include entire cost of equipment maintenance, some of which was charged directly to the various jobs.

TABLE 8.
FUNDS FROM WHICH INDIRECT EXPENSE
AND ENGINEERING AND INSPECTION WERE PAID,
1919-1922, INCLUSIVE.

FUNDS	1919 and 1920	1921	1922	Total 1919-1920
		INDIRECT	EXPENSE ⁽¹⁾	
General Salary and Ex- pense Appropriations...	\$1,813,628.34	\$ 795,605.89	\$ 795,190.59	\$3,404,414.82
State Highway Appropriation.....	816,678.85	309,928.64	.....	1,126,607.49
Motor Fund.....	38,405.09	567,180.37	926,497.64	1,532,083.10
Bond Fund.....	.....	127.74	.....	127.74
Totals.....	\$2,668,712.28	\$1,672,842.64	\$1,721,678.23	\$6,063,233.15
		ENGINEERING AND	INSPECTION ⁽²⁾	
General Salary and Ex- pense Appropriations...	\$1,308,962.63	\$ 562,146.63	\$ 589,703.89	\$2,460,813.15
State Highway Appropriations.....	87,901.54	237,637.06	17,037.95	342,576.55
Motor Fund.....	.....	3,251.75	4,103.01	7,354.76
Bond Fund.....	257,628.75	303,486.45	742,917.96	1,304,033.16
Totals.....	\$1,654,492.92	\$1,106,521.89	\$1,353,762.81	\$4,114,777.62

(¹) The Indirect Expense includes all salaries and all indirect expenditures except what is included under Engineering and Inspection.

(²) The Engineering and Inspection includes only inspectors, salaries and part of the drafting expense.

TABLE 9.
OVERHEAD COSTS 1919-1922, INCLUSIVE. (³)

	(A) Overhead Cost (¹)	(B) Total Expenditures	(C) Total expenditures plus county work supervised	(D) Percentage of overhead	
				Under (B)	Under (C)
1919.....	\$1,385,102.11	\$20,205,966.13 ⁽²⁾	\$20,205,966.13 ⁽²⁾	6.9	6.9
1920.....	2,247,970.50	28,619,701.50	28,619,701.50	7.9	7.9
1921.....	2,363,789.20	42,995,927.97	47,989,193.74	5.5	4.9
1922.....	2,391,547.26	34,054,363.86	43,054,363.86	7.0	5.6
(Estimated)					
Totals.....	\$8,388,409.07	\$125,875,959.46	\$139,869,225.23	6.7	6.0

(¹) Includes indirect expense for Harrisburg office and field offices (except for automobile division which collects motor license fees) also expense for engineering, advertising and inspection, county map and route surveys, with a sum of \$77,600 added to cover the estimated rental value of offices occupied.

(²) Does not include expenditures applicable to 1918.

(³) In order to arrive at representative overhead costs the overhead from the time the State Highway System was established should be applied to total expenditures since that date, as a great deal of expense for surveys and planning for the work done from 1919 to 1922 was incurred prior to 1919. Unfortunately the records of the department prior to 1919 were not kept in proper form for such an analysis.

MAINTENANCE EXPENDITURES.

The fact that certain legislative appropriations from the general fund or from the Motor Fund, as shown in Tables 5 and 6, have covered both maintenance and construction on State Highways or on State-aid Highways and the department's records do not show how these appropriations were spent prior to 1919, makes it impossible to state the exact amounts spent for maintenance and for construction separately for the entire period 1911 to 1922 by a reference to the records of expenditures. However, information is available in regard to the cost of all construction by contract or by the construction bureau, while the records of the maintenance division give total expenditures for maintenance as shown in Table 10.

TABLE 10.

MAINTENANCE EXPENDITURES 1911-1922, INCLUSIVE.⁽¹⁾

1912, 1913 and 1914 ⁽²⁾	\$4,535,749.91
1915-1918.....	15,722,036.63
1919-1922.....	28,875,087.85
(Estimated for 1922).....	
Total 1911-1922.....	\$49,182,874.39

⁽¹⁾ These figures do not include overhead expense.

⁽²⁾ No maintenance expenditures prior to June 1, 1912, when the Highway System was officially taken over.

Of the total of nearly \$50,000,000 spent for maintenance work in eleven years, the expenditures for the past eight years have been at the rate of \$5,500,000 a year, and for the past four years at the rate of over \$7,000,000 a year. The records of the State Highway Department do not give a classification of the maintenance expenditures prior to 1915. But out of the total maintenance expenditures from 1915 to 1922 inclusive, of about \$45,000,000, nearly 50 percent was spent for general repairs of roads and bridges, about 35 percent for resurfacing of roads, and slightly over 15 percent for surface treatments. The year by year maintenance expenditures, and the expenditures by successive administrations since 1911 are shown in Table 11.

TABLE 11.
DETAILED MAINTENANCE EXPENDITURES, 1911-1922, INCLUSIVE. (1)

	General repairs to roads and bridges (2)	Surface treatment of roads	Resurfacing of roads (3)	Total
1911 .....	.....	.....	.....	None
1912 .....	.....	.....	.....	\$1,007,860.00
1913 .....	.....	.....	.....	1,773,709.54
1914 .....	.....	.....	.....	1,754,180.37
1912-1914.....	.....	.....	.....	4,535,749.91
1915	\$1,688,906.43	\$369,275.06	\$1,677,233.06	\$3,735,414.55
1916	1,431,507.80	506,200.92	872,481.96	2,810,190.68
1917	1,840,657.96	724,827.51	1,019,473.89	3,584,959.36
1918	3,147,331.00	1,073,782.38	1,420,358.66	5,641,472.04
1915-1918.....	8,108,403.19	2,674,085.87	4,989,547.57	15,772,036.63
1919	2,758,173.11	1,114,403.77	1,976,321.94	5,848,898.82
1920	3,377,036.45	1,158,764.23	1,597,519.45	6,133,320.13
1921	3,687,803.94	1,496,695.76	3,585,649.22	8,770,148.92
1922(4).....	3,506,581.14	1,395,193.98	3,220,944.86	8,122,719.98
1919-1922.....	13,329,594.64	5,165,057.74	10,380,435.47	28,875,087.85
1915-1922.....	21,437,997.83	7,839,143.61	15,369,983.04	44,647,124.48
1912-1922.....	.....	.....	.....	49,182,874.39

(1) These expenditures by the Maintenance Division comprise more than the ordinary maintenance operations, and include temporary improvement of unimproved roads, by which means over 800 miles of improved roads have been added to the system.

(2) Includes cost of widening roads, whitewashing of poles, etc.

(3) Includes some reconstruction work as well.

(4) Estimated.

CONSTRUCTION EXPENDITURES.

The records of the contract bureau show that contracts totalling \$101,724,342.25 have been awarded from 1911 to September 30, 1922. The mileage of roads involved is 2335.22, and the average cost is \$43,000 per mile. In Table 12 the value of contracts awarded, the mileage of roads constructed and the average cost per mile are shown for each year from 1911 to 1922, and for each administration.

TABLE 12.
MILEAGE, TOTAL COST AND AVERAGE COST PER MILE
OF CONTRACTS AWARDED 1911-1922, INCLUSIVE.

YEAR	Mileage	Total cost	Average cost per mile
1911.....	43.01	\$723,524.53	\$17,000
1912.....	134.18	2,406,122.25	18,000
1913.....	63.79	1,368,268.82	21,000
1914.....	63.57	1,309,138.14	20,000
1911-1914.....	304.55	\$5,807,053.74	19,000
1915.....	7.25	153,248.40	21,000
1916.....	25.12	463,146.01	18,000
1917.....	34.71	1,191,358.52	34,000
1918.....	111.24	4,135,364.50	37,000
1915-1918.....	178.32	\$5,943,117.43	33,000
1919.....	684.94	28,723,716.69	42,000
1920.....	347.94	21,237,624.91	61,000
1921.....	406.91	22,314,166.50	55,000
1922 (1).....	412.57	17,698,722.98	43,000
1919-1922.....	1,852.35	\$89,974,171.08	49,000
1911-1922.....	2,335.22	\$101,724,342.25	43,000

(1) Through September 30, 1922.

TABLE 13.
Record of Contracts.

Period	Number of contracts	Number of Contractors				Maximum number of contracts to any one contractor	Maximum value of contracts to any one contractor	Maximum mileage to any one contractor
		Total	Receiving over 5 contracts	Receiving 2, 3 or 4 contracts	Receiving only 1 contract			
1911-1914	169	87	4	33	50	10	\$439,189.24	21.4
1915-1918	84	65	0	17	48	3	413,066.12	10.9
1919-1922	552	274	10	123	141	11	2,716,936.75	44.3

TABLE 14.
Average Cost Per Mile of Road Construction
Authorized 1919-1922, Inclusive.

PRIMARY SYSTEM.

	Mileage	Total cost	Average cost per mile
1919.....	555.73	\$23,551,503.68	\$42,400.00
1920.....	204.91	12,882,148.83	62,000.00
1921.....	233.87	14,218,617.58	60,900.00
1922.....	163.46	7,330,150.67	44,900.00
Total.....	1,157.97	\$57,982,420.76	\$50,100.00

SECONDARY SYSTEM.

	Mileage	Total cost	Average cost per mile
1919.....	66.01	\$2,805,467.85	\$42,500.00
1920.....	59.48	3,612,571.94	60,700.00
1921.....	46.70	2,767,667.26	59,200.00
1922.....	12.14	664,146.00	55,200.00
Total.....	184.33	\$9,849,853.05	\$53,400.00

STATE-AID, NOT ON ROUTES.

	Mileage	Total cost	Average cost per mile
1919.....	37.11	\$1,438,838.86	\$38,700.00
1920.....	10.25	588,822.45	57,300.00
1921.....	23.08	1,188,637.92	51,800.00
1922.....	.15	13,504.50	90,000.00
Total.....	70.59	\$3,229,803.73	\$44,300.00

COUNTY WORK SUPERVISED BY DEPT., ON AND OFF ROUTES.

	Mileage	Total cost	Average cost per mile
1919.....	22.31	\$857,307.00	\$36,800.00
1920.....	73.29	4,144,081.69	56,500.00
1921.....	103.26	5,146,060.34	49,700.00
1922.....	236.64	9,683,261.91	40,900.00
Total.....	435.50	\$19,830,710.94	\$45,500.00

GRAND TOTALS.

	Mileage	Total cost	Average cost per mile
1919-1922.....	1,848.39	\$90,892,888.48	\$49,200.00

Details of Road Construction Work.

Table 15 indicates the portion of the total expenditure of \$101,000,000 for contract work borne by local governmental units (counties, townships and boroughs), by Federal-aid and by the State, and how the net cost to the State was divided between State Highway or State-aid appropriations (supported by the general state revenue), the Motor Fund and the Bond Fund.

TABLE 15.

MILEAGE AND COST OF ROAD CONSTRUCTION BY CONTRACT AUTHORIZED FROM 1911 THROUGH 1922 ⁽¹⁾
ON STATE HIGHWAYS AND OTHER ROADS.

	Mileage			Total Cost	Distribution of Total Costs		
	Total	On routes	Off routes		Federal-aid	Local agreements	Net to state
1911-1914.....	304.32	184.52	119.80 ⁽²⁾	\$6,266,199.55	\$ 0.00	\$1,769,428.73	\$4,496,770.82
1915-1918.....	173.96	165.16	8.80 ⁽³⁾	5,821,637.17	947,978.83	1,652,388.68	3,221,269.66
1919-1922.....	1,404.78	1,330.90	73.88 ⁽⁴⁾	71,963,738.21	13,031,527.20	5,918,620.15	52,113,590.86
County 100% Construction.....	368.60	282.21	86.39	17,914,708.48	0.00	17,914,708.48	0.00
Totals.....	2,251.66	1,962.79	288.87	\$101,066,283.41 ⁽⁵⁾	\$13,979,506.03	\$27,255,146.04	\$59,831,631.34

Distribution of Net Cost to State.				
	Net cost to state	Motor fund	State Highway Appropriation	State-aid Highway Appropriation
1911-1914.....	\$4,496,770.82	\$ 0.00	\$2,315,066.16	\$2,181,704.66
1915-1918.....	3,221,269.66	0.00	2,223,608.35	511,531.85
1919-1922.....	52,113,590.86	87,542.36	2,491,384.80	2,204,531.35
Totals.....	\$59,831,631.34	\$87,542.36	\$7,030,059.31	\$4,897,767.86
				\$4,816,261.81

⁽¹⁾ Includes contracts awarded through September 30, 1922.

⁽²⁾ State-aid construction.

⁽³⁾ Includes the cost of small bridges and culverts which were a part of the contracts. In addition, 145 bridges were built by contract from 1911-1922 at an extra cost of \$710,558.93.

CONSTRUCTION BY THE CONSTRUCTION BUREAU.

The department records show that 21 separate projects have been handled by the Construction Bureau since 1920 through direct labor. One of these projects involved the completion of a contract job. Five others involved concrete road construction on a large scale while the remainder were chiefly small jobs connected with grade crossing elimination. This work is summarized below to show the mileage of road construction and the estimated cost. The work was financed chiefly from the Motor Fund, with some authorization from the Bond Fund and State Highway and State-aid Highway appropriations.

TABLE 16.
RECORD OF CONSTRUCTION BUREAU'S WORK.

	Type of work	Mileage road construction	Estimated cost
.....	Concrete pavement	5.71	\$484,488.60
.....	“ “	6.67	427,007.28
.....	“ “	9.51	684,384.42
.....	“ “	13.64	952,643.75
.....	“ “	10.15	853,814.95
Totals.....	.....	45.68	\$3,402,339.00
16 projects.....	Miscellaneous	10.57	647,231.59
21 projects.....	.....	56.25	\$4,049,570.59

OTHER CONSTRUCTION BY DEPARTMENT FORCES, 1911-1922, INCLUSIVE.

During the years 1911-1922, 634 bridges were built by the maintenance forces. The construction of 339 of these bridges was authorized from 1919-1922 at a cost of \$859,278.37. The maintenance forces have also expended several hundred thousand dollars on improvement and reconstruction of roads.

In Table 17 is an analysis for the entire period 1911-1922 and for each administration, of the total road construction by contract or by the State's construction forces. It shows that of the total of 2307.91 miles of road construction undertaken from 1911 to 1922, 2019.04 miles were on the State Highway system, 202.48 miles were constructed by the State-aid plan off the system and 86.39 miles were constructed entirely at county expense off the system. Of the 2019.04 miles constructed on the State Highway system, 210.69 miles were constructed by the State-aid plan, 282.21 miles at the entire expense of the counties and 1526.14 miles either entirely at the expense of the State or with Federal aid or local aid.

TABLE 17.

MILEAGE OF ROAD CONSTRUCTION AUTHORIZED
BY CONTRACT OR BY THE STATE'S CONSTRUCTION FORCES
BY EACH SUCCESSIVE ADMINISTRATION SINCE 1911.

	State Highway Routes			Total	State-aid constr. off routes	Co. 100% constr. off routes	Total
	State-aid constr.	Co. 100% constr.	Other constr.				
1911-1914...	77.89	.....	106.63	184.52	119.80	.....	304.32
1915-1918...	43.17	.....	121.99	165.16	8.80	.....	173.96
1919-1922...	89.63	282.21	1,297.52	1,669.36 ⁽³⁾	73.88	86.39	1,829.63
Totals....	210.69	282.21 ⁽²⁾	1,526.14 ⁽¹⁾	2,019.04	202.48	86.39 ⁽²⁾	2,307.91

(1) 56.25 miles by State's Construction Forces.

(2) Total County 100% work 368.60 miles.

(3) 1,238.64 miles on primary system, 430.82 miles on secondary system.

IMPROVEMENT VS. RECONSTRUCTION OF ROADS.

In Table 18 the road construction work authorized by administrations on the State Highway System from 1911 to 1922 is divided between original improvement of dirt roads and the reconstruction of improved roads. Of the total construction of 2019.04 miles, 1573.42 miles represented original improvement, and 445.62 miles represented reconstruction work. In this latter total were 311.86 miles of waterbound macadam which were reconstructed with a more durable type of pavement, representing 16 percent of the entire road construction undertaken on the State Highway System from 1911 to 1922, inclusive.

TABLE 18.

COMPARISON OF MILEAGE OF DIRT ROADS IMPROVED
WITH MILEAGE OF IMPROVED ROADS RECONSTRUCTED
ON STATE HIGHWAY ROUTES, 1911-1922, INCLUSIVE.

Period	Improvement of Roads			Reconstruction of Roads				Total
	By contract	By constr. bureau	Total	Waterbound Macadam		Other types	Total	
				Con- tracts	Constr. bureau			
1911-1914...	64.26	.....	64.26	29.81	.....	90.45	120.26	184.52
1915-1918...	141.31	.....	141.31	15.62	.....	8.23	23.85	165.16
1919-1922...	1,314.04	53.81	1,367.85	263.99	2.44	35.08	301.51	1,669.36
Totals....	1,519.61	53.81	1,573.42	309.42	2.44	133.76	445.62	2,019.04
				311.86				

CONSTRUCTION WORK ON THE PRIMARY SYSTEM.

It was shown in the footnotes of Table 17 that the total of 1669.36 miles of road construction authorized from 1919-1922 on the State Highway System was divided between 1238.54 miles on the primary system and 430.82 miles on the secondary system. The former mileage is further analyzed in Table 19 to show that 987.04 miles represented original improvement of roads and 251.50 miles represented reconstruction work. Of the latter total, 226.53 miles involved reconstruction of old waterbound macadam roads with a more durable type of pavement. This type of reconstruction work has, therefore, represented nearly 20 percent of the entire construction work undertaken on the primary system in the present administration.

TABLE 19.

IMPROVEMENT AND RECONSTRUCTION OF ROADS
UNDERTAKEN ON THE PRIMARY SYSTEM, 1919-1922, INCLUSIVE.

	Total mileage	Mileage improvement of roads	Mileage Reconstruction of Roads		
			Of Waterbound macadam	Of other types	Total
Contracts.....	1,182.29	933.23	224.09	24.97	249.06
Constr. Bureau.....	56.25	53.81	2.44	0.00	2.44
Total.....	1,238.54	987.04	226.53	24.97	251.50

TYPES OF ROAD SURFACE LAID.

Of the 2221.52 miles of road construction authorized by the department from 1911 to 1922, including work on the State Highway System and under the State-aid plan on roads off the system (but not including work paid for entirely by the counties on roads off the system), 1668.92 miles have been of reinforced concrete, or plain concrete, 149.60 miles have been block pavements, 215.63 miles have been bituminous concrete and sheet asphalt, 155.72 miles bituminous macadam and 24.54 miles waterbound macadam. From 1919 through 1922, 1567.49 miles of cement-concrete road construction was authorized, which represents 90 percent of the total construction authorized during this period. The mileage of the several types of work authorized by contract or by the State's construction forces in each administration since 1911 is shown in Table 20.

TABLE 20.

MILEAGE OF VARIOUS TYPES OF ROAD CONSTRUCTION
AUTHORIZED BY CONTRACT OR BY STATE CONSTRUCTION FORCES
1911-1922, INCLUSIVE, ON STATE HIGHWAY ROUTES AND ON
STATE-AID ROADS OFF ROUTES.

(Not including roads off routes paid for entirely by counties.)

	Total mileage con- structed	Reinforced concrete and plain concrete	Block pave- ments	Bitumi- nous concrete and sheet asphalt	Bitumi- nous macadam	Water- bound macadam	Other
<i>Contracts</i>							
1911-1914.....	304.32	3.37	77.68	64.56	142.23	16.48	
1915-1918.....	173.96	98.06	35.98	28.05	0.00	8.06	3.81
1919-1922.....	1,686.99	1,515.90	31.28	123.02	13.49	0.00	3.30
Total by Con- tract.....	2,165.27	1,617.33	144.94	215.63	155.72	24.54	7.11
<i>Construction Bureau</i>							
1919-1922.....	56.25	51.59	4.66	0.00	0.00	0.00	0.00
Grand Total...	2,221.52	1,668.92	149.60	215.63	155.72	24.54	7.11

Classification of Road Types.

TABLE 21.

CLASSIFICATION OF ROAD TYPES ON THE PRIMARY AND
SECONDARY SYSTEMS OF THE STATE HIGHWAY SYSTEM.
OCTOBER 10, 1922.⁽¹⁾

	Primary System	Secondary System	Entire System
Earth.....	1,019.64 miles	3,928.72 miles	4,948.36 miles
Flint, Shale and Gravel.....	99.61 "	246.36 "	345.97 "
Waterbound Macadam.....	1,123.96 "	1,534.42 "	2,658.38 "
Bituminous Macadam and Bitu- minous Concrete on Stone Base..	139.43 "	149.18 "	288.61 "
Bituminous Concrete and Sheet Asphalt on Concrete Base.....	226.20 "	7.13 "	233.33 "
Brick and Other Block Pavements	227.70 "	128.81 "	356.51 "
Concrete (Chiefly Reinforced)....	1,133.96 "	355.39 "	1,489.35 "
Totals.....	3,970.00 miles	6,350.01 miles	10,320.51 miles
Total Improved.....			5,026.18 "
Total Unimproved.....			5,294.33 "

⁽¹⁾ Includes some road improvements placed under contract prior to October 1, 1922, but not completed.

TABLE 22.
COMPARISON OF IMPROVED AND UNIMPROVED MILEAGE
ON THE STATE HIGHWAY SYSTEM
JANUARY 1, 1914, AND OCTOBER 10, 1922.

	January 1, 1914 ⁽¹⁾		October 10, 1922 ⁽²⁾	
	Improved Mileage	Unimproved Mileage	Improved Mileage	Unimproved Mileage
Earth, Shale, Cinder, Flint and Gravel.....		6848.8		5294.3
Stone.....		221.4		
Waterbound Macadam.....	1393.5		2658.4	
Toll (Macadam).....	394.7			
Bituminous.....	164.2		521.9	
Brick and Other Block.....	47.0		356.5	
County-built.....	154.6			
Concrete.....	6.9		1489.4	
Borough Roads.....	500.0	504.4		
	2660.9	7574.6	5026.2	5294.3
Improved Roads added to System 1914-1922.....			2660.9	
			2365.3 miles	
Original Improvement of Roads by Contract 1911-1914.....	21.4			
Original Improvement of Roads by Contract 1915-1918.....	141.3			
Original Improvement of Roads by Contract 1919-1922.....	1314.0			
Original Improvement of Roads by Construction Bureau 1919-1922.....	53.8			
Improved Roads Added by Contract and by Construction Bureau.....	1530.5		1530.5 miles	
Improved Roads Added by Maintenance Forces.....			834.8 miles ⁽³⁾	

(1) Prepared from information contained in the 1914-1917 printed report and after consultation with present officials.

(2) Includes improvements under contract and not completed on October 10, 1922, but not a small mileage of improvements awarded in 1922 after October 10th.

(3) Comprises principally pavements termed "unbound macadam" by the Department, which consist of stone and a light grade of bituminous material, having the appearance of a surface-treated waterbound macadam.

II. Control Over Expenditures.

The expenditures by the department are not planned in advance by a budget system, but such a principle is applied to the expenditures for the maintenance work on the State Highway System. Late in the fall of each year estimates are prepared by the field offices of the funds desired for maintenance work during the coming year, and after these estimates have been gone over by the maintenance inspectors the field offices are allotted definite amounts, which total up to the sum that the administrative officials decide can be expended for maintenance work. This latter decision is based on the expected income from the motor fund, which is practically the sole source of maintenance money.

AUTHORIZATION OF FUNDS.

All expenditures must be preceded by definite authorizations which indicate in detail the purpose for which the money is to be used. These authorizations are numbered by a code system which relates them to the classification of expenditure that is maintained by the auditing and accounting division, and to the different branches of the department organization. Knowing the code it is easy to determine where and for what purpose the money is intended. Primary authorizations are made to cover all overhead expenditures: For each grade of maintenance work performed in the field, separated for the different highway routes; for each construction project by contract or by the department's own forces; for special surveys; for toll-road or toll-bridge purchase; for the purchase of stores or equipment that are controlled by the central office and later issued to the field forces; and for maintenance of equipment that is not directly chargeable to a specific job. These primary authorizations are a notice to the several branches of the department to proceed with the work in question, and to incur liability therefor. An authorization for the resurfacing of a road by the maintenance forces of a certain field office, for instance, is a notice to that office to proceed with such a project—under the supervision, of course, of the Maintenance Division—and to obtain the necessary material which can be purchased through the procedure of the purchasing bureau without further authorization.

CONTRACT CONSTRUCTION.

When a contract has been awarded for a construction project, or the construction bureau has been given a construction job, the authorization that is drawn covers only the bid price, without any allowance for additional compensation that may result from additions to the unit quantities given in the bid or for extra work that is allowed later on. Accordingly, where additional compensation must be made it is necessary to request additional authorization, and no payments for additional work are passed by the auditing and accounting division unless such authorizations have been issued. At the time that an authorization is made to cover the bid price under a contract award a separate authorization representing 2 percent of this amount is made to cover the engineering supervision and inspection, and is charged against the construction fund.

FOLLOW-UP PROCEDURE.

The initial authorizations are supplemented by a departmental routine comprising the necessary safeguards to keep the expenditures within the limits of the authorizations.

While the system of authorizations for the expenditure of money is very good, and insures that funds are standing to the credit of the State Highway Department before expenditures are incurred, and that expenditures shall not exceed the authorizations, it does not entirely control the manner in which the money is expended or insure that the State is getting full value for its expenditures. It is in the purchasing and care of materials and equipment, in the employment and paying of the labor, in the incurring of personal expense, and in the measurement of and payment for contract construction that leakage may occur.

Purchasing.

In recent years purchases of material and equipment have amounted to more than \$6,000,000 a year. A thorough study is needed of the kinds and quantities of materials purchased so that a more complete central control over all purchases can be developed. At present the purchasing system is of such character that a check is maintained upon the field forces and obvious mistakes are eliminated, but the department is not making full use of the opportunity for central purchasing.

PURCHASING PROCEDURE.

The routine purchasing procedure seems fairly well adapted to the present conditions.

PURCHASING BY COMPETITIVE BID.

During the present administration the following materials have been bought by competitive bidding: Classes C, D and H, bituminous materials in all four years; corrugated culvert pipe, all four years; concrete culvert pipe, each year except 1922, when there was only one bid, which was rejected; explosives, in 1919; dump bodies, in 1920; paint, in 1922 (government paint, war material, used prior to 1922); automobile tires, in 1922, and wire rope, in 1922, to be used in guard fences (guard fences formerly included in contracts for road construction).

The equipment and material which are bought through competitive bidding do not represent a very large percentage of the entire purchases. It would seem that more classes of material and equipment should be bought in bulk under competitive bidding. Stone, for example, which comprises one of the major expenditures, has not been bought through competitive bidding except for one year. It is reported that the results under competitive bidding were unsatisfactory, and that shipments could not be obtained promptly. Of course, the sources of the supply of stone are numerous and the material is used at a thousand scattered locations. Naturally no one or two quarries could supply the demand. However, it would seem that this subject merits a closer study, as it is desirable wherever possible to award contracts under competitive bids for large quantities of materials purchased by public works departments.

LABORATORY TESTS.

The purchasing bureau does not require tests on materials purchased for maintenance work to the extent that tests are made on materials entering into the construction work. The tests for maintenance materials should be as thorough as those for construction materials.

OPERATION OF QUARRIES.

The department has undertaken to supply some stone for maintenance work by operating its own crusher plants. In several cases this has been necessary because of the shortage of commercial stone, while in others it has been done to break the commercial price. According to the records, the department owns 41 rock crushers, of which 30 is the maximum reported to be in use at any one time. During 1921, fourteen private crushers were rented from time to time, not more than six of which were operating at any one time.

Care of Material.

Actual supervision over the use of material in the field, of course, rests with the field superintendents. They initially determine the amount to be purchased, although this purchase is approved by the maintenance division in the case of maintenance work or by the construction bureau in the case of construction work by the

department's forces. In the latter branch of the work the material purchased is concentrated in a few places; but in the maintenance work it is scattered over a large territory. The county superintendents are responsible for seeing that the surplus material is transferred to other jobs.

The district engineer and his assistants also keep a check upon the care of material in their trips over the counties. In addition the maintenance inspectors from the Harrisburg office are on the lookout for surplus material. The fact that stone for patching is kept to the side of stone roads, frequently in considerable quantity, may mislead the casual observer as to whether surplus material is being properly cared for.

At the end of each season an inventory is prepared by the district offices of all material of various kinds on hand both on the roads and in storage sheds. Credit is given to the various jobs for the surplus material bought for such jobs and this surplus is carried in the stores account until it is reissued and charged against new authorizations. At the end of 1921 about \$75,000 worth of material was shown in inventories for the 15 districts, and about \$13,000 for the central garage and store-room.

STORES.

The value of the supplies carried in the central garage and store-room has not been great up to the present time, but will doubtless be increased considerably now that a new store-room is available. Supplies are controlled through a stock record and forms for the issuance of stores, which seem appropriate for the purpose.

DISTRIBUTION AND CARE OF EQUIPMENT.

The proper distribution and care of equipment is one of the problems that has recently demanded close study by the department, but which will require even closer control in the future. The distribution by the federal government of war material that might be used for road work has supplied the State Highway Department with a much larger quantity of equipment of certain kinds than would probably have been purchased. The condensed balance sheet for September 30, 1922, shows that assets of \$2,627,170.39 are carried for equipment, which includes, however, the value of certain buildings costing \$255,161.07, while federal equipment not in service, inventoried at \$680,600.00, is not carried as an asset.

The effect of the distribution of federal equipment upon the total amount of equipment owned by the department is clearly shown by the following tabulation, which gives the total number of units of the larger and more important equipment for each year from 1912 to 1922, inclusive:

1912.....	47	1918.....	1,115
1913.....	480	1919.....	1,813
1914.....	546	1920.....	2,685
1915.....	748	1921.....	3,118
1916.....	870	1922.....	3,167
1917.....	1,038		

TABLE 23.
NUMBERED EQUIPMENT OCTOBER, 1922.

<i>Kind</i>	<i>Quantity</i>	<i>Kind</i>	<i>Quantity</i>
Air Compressor Drills.....	19	Steam Drills.....	10
Asphalt Heating Kettles.....	21	Steam Cranes.....	9
Automobiles.....	156	Steam Shovels.....	5
Batch Boxes.....	180	Storage Sheds.....	29
Bituminous Mixing Plant.....	1	Street Sweepers.....	41
Cars (Hand).....	2	Surface Heaters.....	3
Carts (Dump).....	10	Tanks (Storage).....	16
Cement Guns.....	1	Tents.....	17
Chip Spreaders.....	58	Traction Engines.....	16
Concrete Mixers.....	25	Tractors.....	143
Crushers.....	41	Trailers (Truck).....	4
Derricks.....	4	Trucks.....	849 ⁽¹⁾
Dump Cars.....	144	White.....	10
Electric Firing Batteries.....	22	Denby.....	6
Concrete Sub-Graders and Finishing Machines.....	5	F. W. D.....	53
Dump Wagons.....	194	G. M. C.....	25
Fire Wagons.....	1	Garford.....	3
Forges.....	48	Gramm-Bierstein.....	2
Hoists (Steam).....	12	Heavy Aviation.....	107
Hoists (Hand).....	5	Hurlburt.....	10
Locomotive.....	16	International.....	37
Lineograph.....	1	Kelly-Springfield.....	16
Motorcycles.....	103	Light Aviation.....	10
Pumps (Gas).....	110	Lippard-Stewart.....	2
Railroad Flat Cars.....	100	Nash Quad.....	215
Road Machines.....	271	Packard.....	142
Road Planers.....	1	Peerless.....	28
Road Plows.....	82	Pierce-Arrow.....	86
Road Scrapers.....	9	Republic.....	4
Rollers.....	89	Selden.....	2
Rooter Plows.....	63	Standard.....	3
Scarifiers.....	23	Ford Ambulances.....	2
Snow Plows.....	72	Mack.....	85
Sprinklers.....	103	Alco Oil Distributor....	1
Steam Engines and Boilers.....	28	Unloading Outfits.....	7
		Water Carts.....	21
		Water Wagons.....	21

(1) Some 300 trucks in storage for future use.

REPAIR FACILITIES.

The bulk of the federal equipment was received in 1919 and 1920 and has been used for two or more years, which brings it to the point where extensive repairs will be needed. With this fact in mind, a central repair shop and garage has just been erected in Harrisburg, which is equipped to handle repairs, or even to rebuild equipment. It is planned to bring to this central point all repair work of a major character, but to continue to have minor repairs made in the field. Minor repairs are now usually performed by private garages, except in one or two instances where the department has facilities for making repairs at its storage sheds. The question to be worked out in the future, however, is whether the major repairs to all of the department's equipment can be made at the central repair shop in Harrisburg or whether it will be necessary to establish other repair shops of this kind, at different locations, that will provide facilities closer at hand. The department will probably also be called upon to decide whether mechanics and facilities for minor equipment repairs will have to be maintained at still other points in the state. These questions, of course, involve the setting up of additional overhead structure, of a type that may prove very expensive unless held under close control. This whole question should be the subject of a close study before any definite plan is decided upon.

CENTRAL CONTROL OF EQUIPMENT.

The equipment bureau maintains a complete record of each piece of numbered equipment, of when and how it was acquired, of its present condition and its estimated worth, and finally to what work it is assigned. A current record is kept of the equipment that is being operated in each of the districts and by the forces of the construction bureau. Through a system of monthly reports, the office is kept informed of what use is being made of this equipment and whether it is in need of repairs. These records make it possible to transfer the equipment to points where it is most needed.

FIELD INSPECTION OF EQUIPMENT.

The equipment bureau sends inspectors into the field to examine the equipment and to determine whether it is being given proper care. As a result of these inspections the field forces are instructed

as to what repairs should be made or whether the equipment should be sent to the central repair shop at Harrisburg for overhauling. The equipment inspectors are able to visit all districts several times a year, but concentrate their attention in those places where the most equipment is being used. This field inspection is a very important part of the equipment control work.

EQUIPMENT RENTALS.

Following the installation of new accounting methods in the central office at Harrisburg in 1921, a plan was worked out to charge the various jobs with the use of department equipment so that the costs of such work would be more nearly correct. Accordingly, a system of equipment rentals was prepared, which was based on the original cost of each piece of equipment plus interest and plus insurance, which was divided by the average useful life to give the annual charge. Storage and repairs were considered as operation charges and were not included. This schedule shows a monthly rental charge on either a 12-month, 9-month or 8-month working basis.

At the close of the year 1922 it is planned to distribute equipment costs over all the work for 1922. These costs will include the depreciation, interest and insurance, and also expenditures for equipment maintenance which have not been charged directly to the various jobs but which were incurred principally at the central garage. Thus it will be possible to spread the amount shown for equipment maintenance on the yearly financial statement over the maintenance and construction work on which the equipment was used.

DISPOSITION OF FEDERAL EQUIPMENT.

The greater number of the trucks secured from the federal government have been put in service, but some of them are in storage and will be used for replacements. This means that the department will not be forced to purchase additional trucks for several years. About 25 motor trucks have been transferred to other State departments and are in use in those departments. Not all of the miscellaneous equipment obtained from the army camps is readily adaptable to the use of the department. Some of the early assignments were made without asking the department whether the material could be used. Recently the department

has requested only such items as were suitable. There is a large quantity of small tools and small equipment and supplies still in storage in Harrisburg which will supply the needs of the department for some time.

The federal law which authorized the distribution of surplus war material through the U. S. Department of Agriculture, provided that the equipment might be rented to political subdivisions of the state or to contractors performing public road work. Seven such rental agreements have been made with contractors, involving 19 pieces of equipment and total rentals of \$14,205.48. No equipment is on rental at this time to contractors.

INSURANCE ON EQUIPMENT.

The Board of Commissioners of Public Grounds and Buildings administers a state fund to cover damage by fire or accident to state buildings or equipment. While the Commonwealth cannot be sued for damages to persons or private property incurred by the drivers of department equipment, the State Highway Department has found it advisable to carry liability insurance on its motor vehicles. No insurance is carried against theft.

The department carries boiler insurance on its steam equipment, since this insurance is not covered in other ways.

RENTAL OF EQUIPMENT.

As the amount of equipment owned by the department has increased, payments for the rental of equipment have decreased. It is still necessary and economical, however, to rent some equipment, either where the demand is too small to justify the assignment of department equipment, or else where it is necessary to supplement department equipment immediately and no equipment is available in storage or for transfer. Table 24 shows the amount paid in 1921 for the rental of various kinds of equipment.

TABLE 24.
EQUIPMENT RENTED IN 1921.

KIND OF EQUIPMENT	Amount of Rental	Number of Pieces Included
Trucks.....	\$50,657.32	170
Automobile.....	25,520.64	126
Road Machines.....	3,705.78	131
Tractors.....	15,597.93	64
Rollers.....	18,967.26	64
Traction Engines.....	8,312.03	32
Boilers.....	385.37	2
Gasoline Engines.....	63.50	1
Electric Motors.....	162.53	1
Gas Engine and Pump.....	2,322.37	20
Steam Pumps.....	122.15	2
Air Compressors.....	33.00	1
Dump Wagons.....	26.50	1
Water Wagons.....	582.30	9
Water Tanks.....	231.63	3
Street Sweepers.....	22.60	4
Sprinklers.....	849.22	10
Crushers.....	13,508.30	14
Steam Shovels.....	5,057.31	4
Steam Drills.....	1,444.60	8
Scarifiers.....	14.00	1
Dump Scrapers.....	1.00	1
Hand Roller.....	11.50	1
Blacksmiths' Tools.....	60.00	1
Horse and Buggy.....	8.60	1
Unloading Outfit.....	6,689.19	6
Concrete Mixer.....		
“ “.....		
“ “.....	3,208.31	32
Well Drills.....		
“ “.....	2,442.15	3
Locomotive Crane.....	750.00	1
R. R. Siding and Bins.....	776.00	1
Total.....	\$161,533.09	715

TOOL BOXES.

Tools and minor equipment are issued in tool boxes to the foremen of working gangs. Each quarter a report is made by the foremen of the contents of such tool boxes, indicating additions to the various items and also losses. These reports are checked by the equipment bureau and unusual discrepancies are investigated.

County superintendents also keep an eye upon the care of tools and inspect tool boxes at least at the end of the working season. Tools are clearly marked as state property so that they can be identified.

Contract Procedure.

The procedure under which contract work is advertised and awarded is specified to a large extent by law. Advertisement for proposals must be made at least three weeks before the opening of bids, by public notices inserted once a week in at least two newspapers of general circulation in the county or counties where the work is to be performed. It is also customary for the department to insert an advertisement in a Harrisburg paper and in two or more engineering periodicals. Notices are also sent to a list of prospective bidders.

Proposal forms are secured by the prospective bidders from the contract clerk. Plans may be purchased at \$2.50 per set and are not returnable. These plans indicate clearly the work to be done but do not give information concerning the character of the soil to be encountered in excavation. The laboratory will also supply the prospective bidder, on request, with general information concerning the availability of suitable materials.

Bids are opened publicly in the presence of the State Highway Commissioner or the Assistant Commissioner, the Chief Engineer and other officials. The bids are scheduled at once, and schedules containing the estimates are furnished to the Governor, the Commissioner, Assistant Commissioner, Chief Engineer and Auditor General.

Under the provisions of law the award must be given to the lowest responsible bidder, with the option on the part of the Commissioner to reject any or all bids, "if the prices named for the work or materials to be used are higher than the estimated cost, or for any other reason appearing to the Commissioner." Each contract must be approved by the Governor and, as to form and legality, by the Attorney-General or Deputy Attorney-General.

Bids must be accompanied by a certified check in the amount fixed by the Chief Engineer, usually between \$500 and \$4,000. The successful bidder before being awarded the contract must furnish a bond with sufficient surety or sureties in a sum equal to 50 percent of the contract price.

The office procedure provides that the Construction Division shall furnish the Commissioner with recommendations with respect to the award of contracts. This seems to have been done in the past by brief pencil notations on a copy of the bid schedules. There does not seem to be available in the department a formal record of the reasons why bids are accepted or rejected. Such a record should be kept.

Auditing and Accounting.

INVOICES.

The work of the auditing and accounting division, in checking all expenditures of the department, is divided into four branches, namely, invoices, payrolls, contract estimates and expense accounts. Invoices cover purchases made through the regular purchase order or the emergency purchase order. In either case, the invoice section determines first of all that authority has been issued for the purchase. In addition to this control, the invoices are carefully checked to eliminate clerical errors, and all attached papers are examined to verify the correctness of the charge.

FIELD CHECK UPON INVOICES.

Direct responsibility for the correctness of the greater number of invoices, of course, devolves upon the administrative officers in the field, since the greater part of the purchases are of materials for road work. It is necessary, therefore, for the field forces to keep a close check upon materials which arrive by freight or by truck or wagon delivery. For this purpose, various record forms are provided, both relating to freight shipments and to other deliveries, which are supposed to be filled out daily by the foremen and transmitted to the superintendents. Under the procedure now in effect, all invoices must be approved by the field offices, and when they are sent directly by the vendor to the central office they must be forwarded to the field for approval. From casual inspection of the operations of the department, it would appear that a fairly good check is maintained upon the furnishing of material to insure that full value is received. The responsibility for control of this matter, however, is dependent for the most part upon the integrity and alertness of the county superintendents.

PAYMENT OF INVOICES.

Invoices which have been finally approved are paid in either of two ways: In case a discount is offered by the vendor for payment within a specified time and it is still possible to accept this discount, voucher checks are drawn on the advance funds which have been made to the department. Otherwise, the invoices are listed on vouchers and forwarded to the Auditor General, who in turn transmits them to the State Treasurer for payment.

PAYROLLS.

During the year 1921 expenditures for payrolls amounted to nearly \$8,000,000, of which \$5,000,000 related to the per diem employes in the maintenance gangs, and \$750,000 to payrolls from the department's own construction forces, while the remainder of over \$2,000,000 was for indirect expense, chiefly of salaried employes in the office and in the field. Payrolls accordingly represent a very important element of expenditure. The \$5,000,000 outlay for payrolls of the maintenance forces represents, perhaps, the most vulnerable point in the department's control of expenditures, due to the fact that the services are contracted for by 700 or 800 foremen scattered throughout the length and breadth of the state.

Payrolls are of two general classes—salary payrolls and per diem or labor payrolls. The two classes are ordinarily handled under different procedures in the office. Labor payrolls are paid by State Highway Department checks drawn on the funds advanced to the department by the State Treasurer. Salary payrolls are forwarded through the Auditor General to the State Treasurer for payment by State Treasurer's checks.

SALARY PAYROLLS.

The salary payrolls ordinarily include all employes paid on a salary basis in both the office and in the field. They include the office workers at Harrisburg; the district engineers, with their clerks, inspectors, engineers and corpsmen; and also the county superintendents who are in charge of the maintenance work. These payrolls, with the exception of corps payrolls, are ordinarily forwarded to the Auditor General on the fifth and twenty-fifth of each month to cover the semi-monthly periods then in progress.

Checks are received from the State Treasurer's office and distributed on the day following the termination of the pay period.

LABOR PAYROLLS.

Labor payrolls for the maintenance forces are received directly from the county superintendents and in order to expedite payments are not routed through the district engineers. The pay periods in the various counties are so staggered as to distribute payments evenly throughout the month. An effort is made to handle the payrolls quickly, and ordinarily checks are mailed to the county about three days after the pay period has expired. Certain time is then required in distributing the checks, and the workmen receive their money from three to seven days after the close of the pay period. Payrolls for the construction bureau covering the construction work being performed by the state's own forces are forwarded to the paymaster at Harrisburg by the several superintendents of construction.

PAYROLL PROCEDURE.

The payroll procedure comprises the usual safeguards with respect to character of records that are maintained. But the labor forces are now paid principally by the County Superintendents. This function should be performed entirely by paymasters reporting to the Auditing and Accounting Division. The recognized practice is to have a different agency pay the labor forces from the one that employs the men and supervises their work.

The records show that during 1921 the assistant paymasters visited many counties only once, a few two or three times, while the maximum number of visits to any county was seven. In the year 1922, through August 30, only three counties had been visited more than once, while nearly twenty-five counties had not been visited at all.

EQUIPMENT RENTALS.

Payment for the rental of equipment used throughout the department is handled the same as the payment of per diem employes. Foremen's Time Sheets are kept for such equipment the same as for the time of the workmen and the lessor is required to sign the necessary record forms. In the Harrisburg office the Time and Progress Reports for rented equipment are checked to

determine whether the rentals have been authorized and whether the rates indicated have been approved.

CONTRACT ESTIMATES.

Estimates are made monthly of the work accomplished on contract construction and after deducting 10 percent of the amount due, which is withheld until completion of the job, the contractor is paid for the work done during the month. On completion, a final estimate is prepared and the balance due the contractor is paid after the department has secured a release of bond. Semi-final estimates are also made in cases where the final estimate is delayed for any reason.

The several types of estimates originate in the district offices, and are approved by the district engineer and by the Chief Engineer before reaching the auditing and accounting division. Here they are checked, and if found correct, are transmitted by voucher to the Auditor General to be submitted to the State Treasurer for payment.

EXPENSE ACCOUNTS.

The department's policy has been rather rigid in regard to allowances for personal expense. From time to time the department has set certain limits upon the expense which could be incurred for lodging and meals, and as to the extent that Pullman seats might be used on railroad trips. At present, there are no limits which are published for the guidance of the employes, although the impression seems to be held that some former rulings are still in effect, and accounts are usually kept within limits that were previously prescribed.

The policy at present is to pass all expense accounts as submitted unless they are obviously incorrect, but to suggest to the employes, where the items are somewhat questionable, that the expenses should be reduced in the future, if possible. Very few questionable cases have been investigated by the central office, but most disputes are settled by correspondence with the district engineers, who approve all expense accounts for their districts. During the past year irregularities in expense accounts were the cause of dismissal of two automobile inspectors, whose practices appeared to be somewhat at variance with those of the rest of the department.

Since the expense accounts, after approval in the auditing and accounting division, must run the gauntlet of the Auditor General's office before payment by the State Treasurer, it is necessary to submit any information that the Auditor General requires and to be governed by his rulings.

NEW ACCOUNTING SYSTEM.

Following a complete audit of the books of the State Highway Department by Lybrand, Ross Brothers and Montgomery, a firm of certified accountants, early in the year 1921, a new book-keeping system was installed which is very complete and makes possible a very close analysis of the financial operations. The system is so designed as to establish a control over the clerical accuracy of the total postings to the accounts in the general ledger, and of the detailed postings to the accounts in the subsidiary ledgers. The controller is enabled to report financial conditions readily and accurately at all times, and to supplement this report with detailed schedules and exhibits.

Following the 1921 audit the department started a commendable practice of preparing a monthly financial statement which indicates the general financial condition and also sets forth various analyses that are useful in interpreting results. The original plans for this statement were suggested by the consulting accountants, but the statement has been somewhat expanded from time to time to make it more useful. The preparation of this monthly statement also serves a useful purpose within the accounting and auditing division, since all accounts must be made to check at least once a month.

RELATIONS WITH THE AUDITOR GENERAL AND STATE TREASURER.

While some of the auditing and accounting procedure within the State Highway Department has been influenced by the requirements of the State's two fiscal officers, the Auditor General and the State Treasurer, the system has been developed in the main without any particular guidance from these officials, but rather to suit the needs of the department and to expedite its business. For instance, the fiscal year used by the State Highway Department is the calendar year, while the fiscal year used by the

State Treasurer's Office is the appropriation year—from June 1 to May 31. However, it is necessary that the department should plan its work, particularly the road maintenance work, on a calendar year basis, and it is very convenient to use the slack time during the winter months to plan for field work in the ensuing spring, summer and fall.

Because expenditures for highway purposes are now being paid from three separate funds in the State Treasury, the Motor Fund, the Bond Fund and the General Fund, and the books kept by the State Treasurer are books of record only and are not based on a double-entry system which would permit of bookkeeping transfers that could be rendered easy of audit, it is necessary to separate the expenditures chargeable against these three sources and pay them by different checks. Accordingly, invoices, pay-rolls and expense accounts must be divided if they are chargeable to the different sources. While this method simplifies auditing of the books, it considerably increases the work that is involved in making payments, and is confusing to the payee. The man who sells a carload of stone to the State Highway Department looks upon it as only one transaction, regardless of whether the stone has been used on two or more jobs that were chargeable to separate funds in the State Treasury, and he expects to get one check covering the shipment, and not two or more checks which may arrive at varying times without explanation.

Payments that are made by local authorities under agreements for participation in road construction or maintenance, are placed by the State Treasurer to the credit of the particular appropriation or fund from which the work in question is being financed. It sometimes happens, where such money from agreements should be credited to an appropriation of several years' standing, which is nearly exhausted, that the State Treasurer deposits it to the credit of a subsequent legislative appropriation for the same purpose, so that the earlier appropriation may be closed out. This action causes a discrepancy in the accounts kept in the State Highway Department, which must be adjusted. Difficulties of this kind might be easily avoided by consolidating all duplicate appropriations, or funds, and not considering appropriations by a new Legislature as constituting new funds, but rather as additions to funds already on the books. Thus there would be a single State

Highway Construction Fund, a single State-aid Highway Construction Fund, a single Township Reward Fund, Motor Fund, etc. It would appear that this consolidation could be legally made since the law provides that appropriations made to the State Highway Department for road work shall remain for the use of such Department until entirely expended. Of course, appropriations such as General Salary and Expense, which cover the requirements of only two stated appropriation years, could not be consolidated. Consolidation of funds would greatly simplify book-keeping procedure, and, if it cannot be done now, provision should be made by the Legislature in 1923, when new appropriations are to be made.

Cost Accounting.

All expenditures by the department are coded and tabulated in order to give cost figures. Very little of this information is compiled currently for use, but is usually summarized to show the year's operations. It would seem that further study is needed of the kind of information that is valuable, so that this branch of the Accounting and Auditing Division may be used to still greater advantage.

Bonding of Employees.

Under the several acts of legislature which govern the operation of the department, it is provided that the State Highway Commissioner shall give bond in the amount of \$450,000 for the faithful performance of his duties. The Assistant Highway Commissioner's bond is for \$25,000 and the Township Commissioner's bond for \$25,000.

Other employees are bonded in accordance with the provisions of the Act of May 28, 1915 (P.L. 626), which requires that every official and employee who receives or disburses public moneys shall be required to give bond, the amount (unless specified by law) and character of which, and the security for which, shall be approved by the Attorney General. The premiums on all bonds are paid by the State.

In addition to the bonds for the three higher officials there is one other employee under \$25,000 bond, one under \$20,000, one under \$15,000, one under \$10,000, three under \$5,000, two under \$3,000, twenty-two under \$2,000 and eleven under \$1,000 bonds.

III. Disbursements by the State Highway Department.

The State Highway Department acts as a special disbursing agent in the payment of liabilities incurred by the department. This procedure is based upon the Act of April 23, 1909, as amended by the Act of June 2, 1915 (P.L. 726), which provides that the State Treasurer, upon requisition approved by the Auditor-General, may make advances of cash to a state department under conditions which make it impracticable for the department to follow the usual procedure of filing with the Auditor-General itemized receipts or vouchers prior to the advance of cash to meet such expenses. The cash so advanced must be placed in depositories approved by the Board of Revenue Commissioners, and the law provides that the advancement shall not exceed the bond of the officer having control of the disbursements from the advance fund. This provision of the law has made it necessary to increase the bond of the State Highway Commissioner from \$200,000 to \$450,000.

The State Highway Department has been receiving advances of cash since 1912, in order principally that the labor forces might be paid without the delay incident to sending the payroll through the regular channels of the Auditor General's and State Treasurer's offices. The advances are placed on active account in the Harrisburg Trust Company and the Commonwealth Trust Company at Harrisburg. Checks, signed by the paymaster, are drawn against these accounts to meet the labor payrolls; while voucher checks, signed by the paymaster and countersigned by the controller, are drawn to meet invoices where a discount is offered for payment within a specified time. The department claims a saving of \$27,381.97 by taking discounts on 7,013 bills during 1921, while in 1922 about \$20,000 has already been saved in this manner. Discounts are not offered by all consignors, but the advantage to them of prompt payment of the accounts by the State has induced some firms recently to offer discounts though they did not quote such terms previously. The ability of the department to accept discounts has not only proved a saving to the state over and above such slight additional expense as may have been incurred in using these advance funds to pay invoices as well as payrolls, but it has helped

to dispel somewhat the opinion held throughout the state that the state government is dilatory in its payments and unbusinesslike in its methods.

AMOUNT OF DISBURSEMENTS.

During the year 1921 a total of \$9,134,882.94 was disbursed by the department. The total expenditures by the department during the same period were slightly in excess of \$43,000,000, of which about \$28,000,000 represented payments on estimates for contract road construction work, which, of course, were paid through the regular channels. Thus out of the sum of approximately \$15,000,000, which represented total expenditures for other than contract construction, the department itself disbursed over \$9,000,000, or over 60 percent of the total. During the first nine months of the year 1922 disbursements totaling \$7,327,419.91 have been made by the department.

ACCOUNTING TO THE AUDITOR GENERAL.

Accounting is made to the Auditor General, as required by law, for disbursements from the advance fund. Records of these disbursements are submitted separately, where the payments are chargeable to the motor fund, from those that are chargeable against the bond fund or the general fund. The former amounts are charged directly against the motor fund, while the accounting requisition blanks covering the latter funds are considered more as vouchers submitted for payment; and when funds are available checks are drawn to the State Highway Department for deposit in the advance fund.

Until such time as the State Treasurer's office is equipped to handle the payments expeditiously, it would seem to be desirable to have the State Highway Department continue to perform this function.

IV. Collection of Motor License and other Fees and Penalties by the State Highway Department.

Through the collection of license fees, fines and penalties, incident to the registration of motor vehicles and traction engines, the State Highway Department constitutes a very important collector of revenue for the Commonwealth. Money is also collected by the department from certain miscellaneous sources which is turned over to the State Treasurer.

MISCELLANEOUS RECEIPTS.

During the year 1921 miscellaneous cash receipts amounted to \$9,653.83, of which \$2,022.93 was obtained through the sale of county maps, \$4,647.90 from the sale of plans to prospective bidders at \$2.50 a set, \$2,000.00 through the forfeiture of a certified check by a bidder who refused to execute a contract awarded him, and \$983.00 from the rental of old toll-houses owned by the department.

RECEIPTS FROM LICENSE FEES.

Moneys received by the department from the operation of the laws providing for the registration of motor vehicles and traction engines now exceed \$12,000,000 per year. Receipts from this source are, of course, largely concentrated into a short period around the first of each calendar year, and enormous expansion of the force in the automobile division is necessary to handle the business.

The department has thrown safeguards of several kinds around the handling of these moneys. All incoming mail is opened in the cashier's office, where a close check is kept upon the entire procedure from the time the money is taken from the correspondence or accepted at the cashier's window until it is deposited in the bank.

The receipts of the automobile division are not transferred directly to the State Treasurer, but are deposited in the Commonwealth Trust Company at Harrisburg in a State Highway Department account, from which transfers of cash are made to the State Treasurer, and are credited by the latter to the motor fund and placed in such depositories as he may maintain for the motor fund. This arrangement was approved by the Board of Revenue Commissioners, and was inaugurated several years ago because of the inability of the State Treasurer's office to handle the receipts expeditiously and to deposit them promptly, so as not to delay collection on the checks and not to lose interest on the deposits. During the very busy days around the beginning of the calendar year the daily receipts by the automobile division have run over \$250,000, made up principally of rather small checks. Considerable work is involved in handling these checks, which the State Treasurer's office seemed to be unable to perform.

The arrangement with the Commonwealth Trust Company is that the State Highway Department will keep a minimum of \$650,000.00 on deposit to compensate the bank for its services in handling the receipts. The bank allows the department only 2 percent interest on daily balances, although the account is a partially inactive one. Since the bank is permitted by the state to withhold the crediting of deposits until collection is made on the checks, the daily balances upon which interest is paid are somewhat less than the balance of the actual deposits.

TRANSFER OF CASH TO STATE TREASURER.

About once a week the auditing and accounting division of the State Highway Department ascertains from the bank the balance which is credited to the department, checks this balance with the record of the automobile division, and has a check drawn to transfer cash from the account in the Commonwealth Trust Company to the State Treasurer. Generally the amount transferred represents the receipts of the automobile division for some particular week in the past, and the State Treasurer is supplied with information concerning the number of license fees and fines, of varying amounts, which constitute the amount of money that is transferred.

In Table 25 is shown a record of the deposits through September 27, 1922, of the automobile division receipts which relate to the year 1922, also the amounts of the various checks by which cash was transferred to the State Treasurer from the bank account, and the balance of the total deposits, and the balance credited to the department by the bank on the days when transfers of cash were made. Reference to the last column shows, even on the basis of the delayed credits made by the bank, that balances exceeding \$1,000,000, and on one occasion exceeding \$2,000,000, were maintained at the bank from December 5, 1921, to January 24, 1922, and that the balances did not fall below \$700,000 until July 5 except for a short period around June 7. Thus balances have been maintained at the bank considerably in excess of the guarantee made and the State has lost 1 percent interest on these excesses, since it receives 3 percent on inactive deposits of the motor fund that are made by the State Treasurer. The guaranteed deposit of \$650,000 at only 2 percent interest is also open to serious question.

TABLE 25.
DEPOSIT OF MOTOR FUND (1922) RECEIPTS AND TRANSFERS TO STATE TREASURY SHOWING
BALANCES OF DEPOSITS AND BALANCES OF CREDITS.

No.	Date	Amount trans- ferred to state treasurer by check	Total amount transferred to date	Total of deposits	Balance of deposits after transfers	Total credited to department by the bank	Balance credited after transfers
1.	11-23-21	\$75,000.00	\$75,000.00	\$889,754.58	\$814,754.58	\$836,133.88	\$761,133.88
2.	12-5-21	250,000.00	325,000.00	1,513,656.79	1,188,656.79	1,417,596.61	1,092,596.61
3.	12-7-21	212,961.15	537,961.15	1,769,659.19	1,231,698.04	1,655,450.82	1,117,489.67
4.	12-12-21	200,000.00	737,961.15	2,343,793.13	1,605,831.98	2,176,284.08	2,102,487.93
5.	12-13-21	400,000.00	1,137,961.15	2,500,806.07	1,362,844.92	2,330,575.78	1,192,614.63
6.	12-19-21	500,000.00	1,637,961.15	3,391,135.32	1,753,174.17	3,190,559.65	1,552,598.50
7.	12-21-21	400,000.00	2,037,961.15	3,779,897.89	1,741,936.74	3,577,030.34	1,539,069.19
8.	12-23-21	500,000.00	2,537,961.15	4,136,343.62	1,598,382.47	3,936,042.25	1,398,081.10
9.	12-29-21	500,000.00	3,037,961.15	5,076,227.05	2,038,265.90	4,881,860.33	1,843,899.18
10.	1-3-22	600,000.00	3,637,961.15	5,884,673.40	2,246,712.25	5,719,279.97	2,081,318.82
11.	1-10-22	900,000.00	4,537,961.15	6,841,109.44	2,103,148.29	6,516,292.08	1,978,330.93
12.	1-16-22	1,000,000.00	5,537,961.15	6,883,934.53	1,345,973.38	6,786,033.97	1,248,072.82
13.	1-24-22	700,000.00	6,237,961.15	7,082,100.38	844,139.23	6,998,820.94	760,859.79
14.	1-30-22	170,000.00	6,407,961.15	7,191,658.03	783,696.88	7,113,899.53	705,938.38
15.	2-6-22	133,000.00	6,540,961.15	7,337,892.51	796,931.36	7,262,860.89	721,899.74
16.	2-14-22	88,000.00	6,628,961.15	7,508,553.87	879,592.72	7,436,445.54	807,484.39
17.	2-20-22	148,000.00	6,776,961.15	7,609,862.44	832,901.29	7,537,655.29	760,687.54
18.	2-28-22	139,000.00	6,915,961.15	7,806,222.22	890,261.07	7,729,574.37	813,613.22
19.	3-6-22	123,000.00	7,038,961.15	7,945,056.74	906,095.59	7,865,389.79	826,428.64
20.	3-13-22	196,914.04	7,235,875.19	8,119,748.70	883,873.51	8,039,099.71	803,224.52
21.	3-20-22	180,000.00	7,415,875.19	8,331,683.34	915,808.15	8,248,004.23	832,129.04
22.	3-27-22	186,000.00	7,601,875.19	8,539,818.08	937,942.89	8,456,502.56	854,627.37
23.	4-4-22	300,000.00	7,901,875.19	8,806,525.34	904,650.15	8,732,796.78	820,921.59
24.	4-12-22	280,275.44	8,182,150.63	9,099,292.39	917,141.76	9,010,169.59	828,018.96
25.	4-19-22	168,109.08	8,350,259.71	9,318,961.28	968,701.57	9,230,344.67	880,084.96
26.	4-27-22	270,672.10	8,620,931.81	9,555,246.87	934,315.06	9,469,138.92	848,207.11
27.							

28	5-4-22	\$242,239.25	\$8,863,171.06	\$9,759,436.66	\$896,265.60	\$9,671,053.97	\$807,882.91
29	5-10-22	188,402.33	9,051,573.39	9,916,490.58	864,917.19	9,829,035.65	777,482.26
30	5-19-22	248,091.68	9,239,665.07	10,149,401.35	849,736.28	10,058,799.40	759,134.33
31	5-24-22	96,914.25	9,396,579.32	260,790.87	864,211.55	10,172,225.65	775,646.33
32	5-31-22	166,745.50	9,563,324.82	10,404,317.60	840,992.78	10,316,051.92	752,727.10
33							
34	6-7-22	323,653.53	9,886,978.35	10,539,396.70	652,418.35	10,450,318.86	563,340.51
35	6-16-22	57,740.60	9,944,718.95	10,773,174.31	828,455.36	10,675,735.53	731,016.58
36	6-21-22	88,976.70	10,033,695.65	10,883,056.24	849,360.59	10,785,006.61	751,310.96
37	6-28-22	192,811.78	10,226,507.43	11,025,412.23	798,904.80	10,929,052.70	702,545.27
38	7-5-22	133,885.03	10,360,392.46	11,151,968.19	791,575.77	11,057,174.57	696,782.11
39	7-12-22	135,798.41	10,496,190.87	11,259,146.48	762,955.61	11,164,424.52	668,233.65
40	7-19-22	76,491.81	10,572,682.88	11,343,395.29	770,712.61	11,249,666.58	676,983.90
41	7-27-22	132,507.95	10,705,190.63	11,404,565.67	699,375.04	11,315,060.33	609,869.70
42	8-3-22	56,412.98	10,761,603.61	11,550,636.01	789,032.40	11,448,858.75	687,255.14
43	8-9-22	71,854.01	10,833,457.62	11,669,286.56	835,828.94	11,566,599.56	733,141.94
44	8-16-22	121,610.88	10,955,068.50	11,752,197.30	797,128.80	11,650,967.12	695,898.62
45	8-23-22	119,139.32	11,074,207.82	11,827,348.79	753,140.97	11,727,444.07	653,236.25
46	8-31-22	55,631.30	11,129,839.12	11,910,433.66	780,594.54	11,807,867.40	687,028.28
47	9-6-22	50,908.25	11,180,747.37	11,954,391.39	773,644.02	11,852,501.81	671,754.44
48	9-13-22	80,629.21	11,261,376.58	12,016,866.10	755,489.52	11,915,531.42	654,154.84
49	9-20-22	59,140.15	11,320,516.73	12,076,792.10	756,275.37	11,972,537.77	652,021.04
50	9-27-22	70,122.30	11,390,639.03	12,136,979.03	746,340.00	12,031,543.42	640,904.39

PART 3.

Personnel.

The State Highway Department has more employes than any other State Department. During recent years a maximum of over 10,000 persons have been engaged at one time in the several branches of the department's work.

During 1921 the average number of salaried employes was 1,367, of which 1,130 were male and 237 were female. The total payroll for department employes in 1921 was \$7,977,138.54, of which \$4,947,778.25 was for the maintenance forces, \$735,512.94 for the department's own construction forces, \$900,821.16 for engineering services and inspection of contract construction and \$1,125,188.96 for indirect or overhead expense.

OFFICE HOURS.

The offices of the department are open for business from 9 to 5 on weekdays and from 9 to 1 on Saturdays.

WORKING DAY FOR FIELD FORCES.

The working day for the field forces is ten hours. Where there is overtime it is paid for at the straight rate. Since most of the county maintenance road gangs are recruited from the surrounding territory, it is usually unnecessary to maintain a laborers' camp, although this may be done in case of extensive road reconstruction. Where the department is constructing roads with its own forces, through the construction bureau, it is necessary to provide camp facilities. On such work there is usually a fair amount of overtime put in by the workers, particularly on the part of truck drivers and mechanics who must prepare for the succeeding day's operation. In some cases, also, a night shift is used.

TABLE 26.

CLASSIFICATION OF SALARIED AND PER DIEM EMPLOYEES
OF STATE HIGHWAY DEPARTMENT ON JUNE 30, 1922,
AND NUMBER OF WORKERS IN CONTRACTORS' FORCES.

	All divisions and bureaus except 15 district offices	15 District offices	Totals
<i>Salaried Employees</i>			
Bookkeepers.....	10	0	10
Chauffeurs.....	8	13	21
Chemists and Laboratory Assistants..	23	00	23
Chiefs of Divisions and Bureaus.....	10	0	10
Clerks.....	194	74	268
Corpsmen.....	0	153	153
Draftsmen.....	26	78	104
Engineers.....	19	38	57
Inspectors.....	39	435	474
Mechanics.....	12	0	12
Messengers.....	2	0	2
Officials.....	3	0	3
Operators—Tabulating Machines.....	20	0	20
Paymasters.....	6	0	6
Photographers.....	1	0	1
Stenographers.....	25	18	43
Superintendents.....	7	52	59
Typists.....	33	2	35
Watchmen.....	6	0	6
Total Salaried Employees.....	444	863	1,307
<i>Per Diem Employees</i>			
Caretakers.....	0	326	326
Foremen.....	1	793	794
Laborers.....	3	5,349	5,352
Drivers with teams.....	0	1,320	1,320
Timekeepers.....	0	27	27
Truckdrivers.....	2	267	269
Field Employees Construction Bureau.	974	0	974
Total Per Diem Employees.....	980	8,082	9,062
Total Salaried and Per Diem Employees.	1,424	8,945	10,369
Average No. of Workers in Contractors' Forces.....			7,945
Total Engaged in Work on the Highway System.....			18,314

METHODS OF APPOINTMENT.

The State Highway Commissioner, who is appointed by the Governor, is vested with full control over the appointment of the entire personnel of the department. There is no civil service in operation to provide lists of eligible persons from which appointments could be made. The department, therefore, must recruit its own employes, and it possesses absolute control over their appointment and over their discharge.

The appointing power of the State Highway Commissioner for the most part is delegated to various administrative officials. The county superintendents of maintenance, for instance, control the employment of laborers within their territory, and it is only in case

of the higher paid per-diem employees, such as foremen, truck drivers and rollermen, that the appointment and the rate of pay are approved by the Maintenance Division at Harrisburg. The laborers in the county maintenance forces, over whose employment or discharge the central office exercises no control, constitute more than half of the total number of employes on the payrolls of the department.

As would naturally be expected, much closer supervision is maintained by the executive officials over the employment of salaried employes. Even in this case rather a free hand is given to the heads of the several major divisions of the department. The Chief Engineer, for instance, exercises almost complete control over appointments and promotions in the engineering forces.

QUALIFICATIONS FOR APPOINTMENT.

The laws which govern the operation of the department contain but few references to the qualifications of the employes of the department. Such references as are made relate chiefly to the qualifications of the engineering personnel. The law states that the Assistant State Highway Commissioner shall be an experienced executive and a competent civil engineer; that the Chief Engineer shall be a capable and competent civil engineer, experienced in the building and maintenance of improved roads; that the assistants to the Chief Engineer—the principal assistant engineer, construction engineer, office engineer, and engineer of plans and surveys—shall be capable and competent civil engineers, experienced in the design and construction of highways; that the engineer of bridges shall be a capable and competent civil engineer, experienced in the design and construction of bridges; and that the district engineers and additional civil engineers shall be experienced in improved road building. The law requires that the superintendents of highways shall be experienced in the construction and maintenance of improved roads; that the controller shall be “an expert accountant” and the assistant controller “an experienced accountant.”

No qualifications are stated by law for the other salaried positions mentioned in the acts of legislature which define the operation of the department, namely, the township commissioner, the township engineer, engineer of tests, equipment engineer, engineers' assistants, draftsmen, inspectors, secretary to the commis-

sioner, statistician, registrar of motor vehicles, executive manager, purchasing agent, paymasters, cost accountant, bookkeepers, cashier, stenographers and clerks. It is accordingly left to the department to fix the qualifications of the majority of the salaried employes. Qualifications have not been established by the department similar to those used by various civil service commissions throughout the country, nor have they been put in written form whereby a comparison could be made with the qualifications for similar positions in other governmental departments. Nevertheless, the department does maintain certain standards as regards the qualifications of its appointees. These standards are generally fixed in the several important divisions of the department. They seem to be of a higher standard in the construction division, which comprises the engineering force, than elsewhere.

One of the focal points of attack upon the personnel of the department is the position of county maintenance superintendent, which controls the employment of labor in the counties. The law has always specified that these superintendents should be "experienced in the construction and maintenance of improved roads," but "experienced" is a broad term and the superintendents in many instances have not been qualified to supervise the work. At certain times in the past appointees have possessed little if any qualifications for their position, and not all of the present incumbents can be considered as fully qualified to guide and control the expenditure of the public money.

PROCESS OF APPOINTMENT.

Under the procedure now followed, no appointments to salaried positions are supposed to be made except on requisition by the several administrative heads. An application blank has been provided which is filled out by prospective appointees. These blanks are filed together for the entire department and supply information concerning the training and experience of nearly all persons appointed since 1920.

The department does not make any test of the applicant's fitness other than is provided by ascertaining the opinions of the references given, or as may be obtained from a personal interview. The single exception to this procedure is the questionnaire blank which

prospective truck drivers must fill out and which are designed to give an indication of the practical knowledge of the applicant.

Either previous to the employment of any person or immediately thereafter, a record form called "Notice of Employment" is filled out which gives certain pertinent facts concerning the appointee, such as his home address and present address, *the county from which appointed* and the names of those persons who have recommended him. The title of the position to which he is appointed is also shown, with the date of appointment and the pay. After approval by the proper executive in the division to which the appointment applies, the record is forwarded to the management division and in some cases is also submitted to the State Highway Commissioner or to the Assistant State Highway Commissioner for approval. The original copy of the notice of appointment as finally approved is sent to the auditing and accounting division, while a duplicate copy is returned to the division or district office to which it applies.

PROMOTIONS.

The department is making an effort to fill the higher positions as they become vacant by promotion from the ranks. This is a commendable policy which serves to improve the *esprit de corps*. Under the conditions that exist, of course, the selection lies entirely with the higher administrative officials, who search out the more efficient of their subordinates and recommend their promotion to higher responsibilities. The effectiveness of such a plan of promotion naturally depends upon the extent to which the various administrative officials are willing to subordinate minor personal differences. It would seem a wise policy to have a supplementary competitive test open to all the employes who are in line for promotion. Such tests would bring out some of the more backward employes, and set a definite goal for their studies. At least, it would provide an opportunity for each employe to show the administrative heads how far he has developed.

SALARIES AND WAGES.

The salary of the State Highway Commissioner, of \$10,000 per annum, is the only salary the rate of which is now fixed by law. The State Highway Commissioner is authorized to fix the rates

of all other salaries. The salary of the Assistant Highway Commissioner was accordingly fixed at \$12,000, that of the Township Commissioner at \$6,600, and of the Chief Engineer at \$10,000. There is a big drop from the salaries of these few higher administrative heads to those of their principal assistants, or to the salaries of other administrative heads, which range from about \$3,600 to \$5,000 per annum. The district engineers who occupy the most important positions in the field, with very extensive work covering considerable territory, are paid only from \$3,300 to \$4,000 per year. The county superintendents receive only from \$1,800 to \$2,100. The general run of salaries in the engineering forces is low, although there are a number of positions which pay a moderate salary.

While the more important engineering positions are paid on an annual basis, there are many subordinate positions where the employment may not be constant, which are paid a monthly salary. This condition applies to inspectors, who receive from \$100 to \$175 a month, assistant inspectors at \$90 to \$140, draftsmen at \$90 to \$175, assistant draftsmen at \$75 to \$125, chiefs of field party at \$125 to \$150, chainmen at \$75 to \$90 and rodmen at \$60 to \$65.

Among the clerical workers the pay is, on the whole, less than the average for the same work elsewhere. Typists are paid from \$65 to \$75 per month, stenographers from \$75 to \$110, assistant clerks from \$65 to \$75, general clerks from \$75 to \$100, and a few more important clerical positions up to \$200 per month.

All field positions below the grade of county superintendents are paid on a per diem basis. A few foremen and laborers who make minor repairs to the roads after the active construction and maintenance season is closed, or who may be engaged in the removal of snow from the highways, receive almost continuous employment, but the great majority of the per diem employees work on a seasonal basis. The rates of pay in the field forces vary in the different sections of the State, due to local conditions. On the whole, however, during the major part of 1922, foremen have been paid from 30 to 50 cents per hour, general foremen from 40 to 65 cents, rollermen from 35 to 50 cents, truck drivers from 35 to 50 cents, caretakers from 25 to 45 cents, common labor from 20 to 35 cents. These rates have been somewhat advanced during

the present fall. The labor rates in 1921 were about 25 percent in excess of those just given for 1920. Teams could be hired during the greater part of 1922 all the way from 40 to 80 cents per hour, while in 1921 the rates ranged from 50 to 90 cents, and in one county to a dollar.

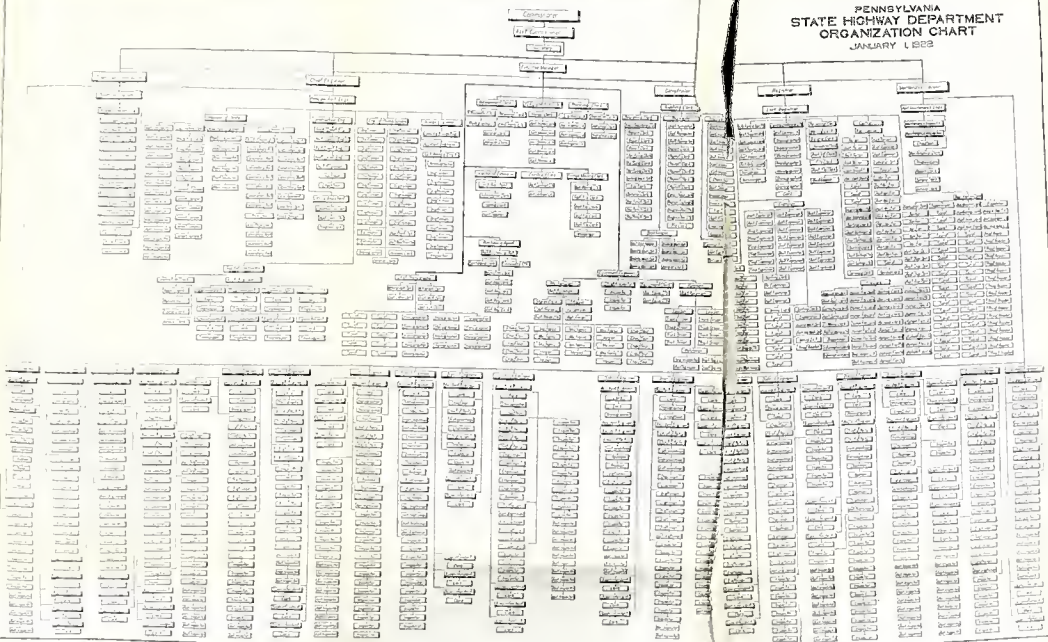
PERSONNEL RECORDS.

A visible file record of the employees in the central office at Harrisburg is kept in the office of the management division, where it furnishes a ready reference to the more important facts concerning each employee. A card file is also kept in the auditing and accounting division, which gives the payments made to each employee, while the notices of employment referred to above are also on file.

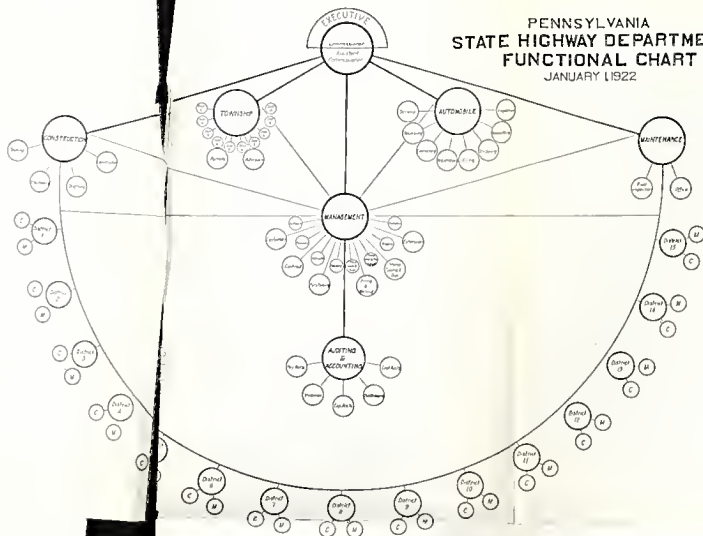
Each superintendent and district engineer's office in the field and each division of the department in Harrisburg prepares a monthly personnel report, and an office attendance report. The monthly personnel report from each branch of the department is then summarized on one sheet to enable comparisons to be made with preceding months. Similar records show the total monthly payroll for salaried positions in the office and in the field. All of this information is made up into charts covering a period of months which enables the higher executives to ascertain the status of personnel at any time. The charts showing the trend of the total personnel are supplemented by others which show the number of new appointments, the resignations, transfers, and increases in pay for each branch of the organization and for the entire department. While the preparation of these latter charts was begun in June of 1919, the record was carried back upon request to include all of 1919 so as to complete the entire period covered by the present administration.

Information in regard to the prior experience of employees may be obtained in the case of most of those who joined the department since 1920 by reference to the application file. In regard to older employees, there is no complete record except that the construction division has information on practically all the members of its engineering force. The maintenance division has no complete record of the experience and qualifications of the county maintenance superintendents, except in cases of some of the more recent appointees.

PENNSYLVANIA
 STATE HIGHWAY DEPARTMENT
 ORGANIZATION CHART
 JANUARY 1, 1923



PENNSYLVANIA
STATE HIGHWAY DEPARTMENT
FUNCTIONAL CHART
JANUARY 1922



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A Survey of the Fiscal Policies of the Department of Public Printing and Binding of Pennsylvania

A REPORT TO THE
CITIZENS' COMMITTEE ON THE
FINANCES OF PENNSYLVANIA

By

MR. JOHN H. WILLIAMS

New York Manager, Day & Zimmermann
Engineers

DECEMBER, 1922

Acknowledgments.

The Citizens' Committee on the Finances of the State of Pennsylvania was appointed by Gifford Pinchot, then Republican nominee for Governor of the State of Pennsylvania, for the following purposes:

(1) To secure and consider the best available figures showing the money income of the state from all sources during the current biennial fiscal period; to secure and consider the best available figures showing the probable total revenue from all existing sources during the next biennial fiscal period; and to make needful recommendations as to sources of revenue and methods of taxation, with the object of avoiding additional or unnecessary burdens upon the people of the state.

(2) To inquire into the expenditures of all monies appropriated for any purpose by the legislative session of 1921; to consider the necessity for such expenditures; to estimate the probable deficits, where such exist; and to make needful recommendations for the more economical and effective expenditure of the state's funds.

(3) To examine into the present methods of appropriating and expending the money received by the state from all sources; to make recommendations as to the fiscal policies of the state; and to propose a form of budget that will assist in preventing the appropriation of monies in excess of the probable revenue.

The Committee in undertaking its responsibilities early decided that it was advisable to have special surveys made of the spending policies of each of the larger departments through an expert peculiarly qualified in each respective field.

The Committee chose for the expert to make the survey of the fiscal policies of the State Department of Public Printing and Binding, Mr. John H. Williams, New York Manager for Day and Zimmermann, Incorporated. Mr. Williams was at one time in the printing business in Baltimore, Md. He is the founder of the Williams & Wilkins Company of that city. He specialized in the printing industry in New York City for a number of years as a consultant in management, in which capacity he served both public and private interests, including some of the largest concerns in

New York City. During the Blankenburg administration he drew up the specifications for public printing and binding for the city of Philadelphia. He is a member of the Committee on Elimination of Waste in Industry of the Federated American Engineering Societies appointed by Mr. Herbert Hoover, in which capacity he made an investigation of the printing industry and wrote the section of the report on that subject in "Waste in Industry." He also has had a broad experience in purchasing, having been in charge of Organization and Methods for the direction of purchases during the War.

Inasmuch as there are many important phases of public policy entering into each of these spending policies it was deemed advisable to associate with each of the experts an advisory committee to add their judgments to the matter at hand.

The members of the Advisory Committee on the Department of Public Printing and Binding of Pennsylvania are: Mr. James Rudisill, of the York Printing Company, York, Pa., Mr. J. P. McCullough of the Telegraph Printing Company, Harrisburg, Mr. Maurice N. Weyl of Edward Stern and Company, Philadelphia, Hon. W. O. Smith, Editor of the Punxsutawney Spirit, Punxsutawney, Pa., Mr. J. Horace McFarland, of the J. Horace McFarland Company, Mount Pleasant Press, Harrisburg, Pa., Mr. John A. Phillips, of the Pennsylvania Federation of Labor in Philadelphia, and Mr. Theodore Eichhorn of Erie, Pa.

These surveys by experts are made as reports to the Committee and the Committee has immediately released them for publication. The Committee, of course, cannot and does not take the credit to itself for either the work or the recommendations. Credit in these matters is due solely to the expert and those who have advised with him.

The Citizens' Committee on the Finances of Pennsylvania

Clyde L. King, Chairman	Hon. D. Edward Long
Charles J. Rhoads, Treasurer	General Asher Miner
Mrs. Walter King Sharpe, Secretary	Mr. T. D. Stiles
Hon. Franklin Spencer Edmonds	Mrs. William Thaw, Jr.
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Mr. Allen W. Hagenbach	Hon. George W. Woodruff
Mr. Alba B. Johnson	Hon. George Woodward
Mrs. Mary Flinn Lawrence	Mr. Paul D. Wright

A Survey of the Fiscal Policies
of the
Department of Public Printing and Binding
of Pennsylvania

Scope of Report.

I have made no investigation as to the existing laws or needed changes nor have I sought to criticise existing methods beyond the development of a few outstanding facts which seem to be conclusive in their significance.

My effort has been devoted to determining the fundamental principles upon which State procurement of paper, printing and binding should be based to insure efficiency and economy, leaving it for others to develop the details as to how these principles can best be made effective.

Present Methods.

Without going into the history of how the present methods have come about or as to the conformity of the present methods with the law, the present practice is, briefly, as follows:

The State buys its "paper and other supplies required for the public printing and binding" in bulk and maintains warehousing facilities for their storage and distribution as needed. The contract for paper and supplies is relet each year on a competitive basis, the State indicating by samples character of paper and supplies desired and the competitors being allowed to submit samples with their bids. The award is made on the basis of the successful bidder's samples.

The State contracts for its printing and binding on the basis of a separate price for each item but covering the requirements for the period of the contract. The items are described in general terms in the request for bids, and samples are made available to the bidders. The bidders are also given access to the records of preceding years for such information as they are able to obtain from the actual facts of the past.

In both cases the State specifies a maximum price for each item. The bidders bid a certain per cent discount from the maximum price as, for example, if the maximum price were \$10.00, 80% off would be \$2.00 net and 75% off would be \$2.50 net.

Preparation of specifications, securing bids, making awards and the supervision of the work done is in the hands of the Superintendent of Public Printing and Binding, whose offices are at Harrisburg, Penna. The various departments of the State make requisition upon the Superintendent of Printing and Binding and he issues an order for the paper or supplies to his own warehouse and for printing and binding to the printer who has secured the contract. Part of the paper is stored with the State Printer and in some cases both orders go to him. All proofs are cleared through the Superintendent of Printing and Binding's office and records are kept as to their movement.

The bill for State printing and binding is made on one of the copies of the order. This copy also contains the receipt of the department for the material described in the bill. This bill is approved by the Superintendent of Printing and Binding and forwarded to the Auditor-General for approval and to the State Treasurer for payment.

The Superintendent of Printing and Binding exercises limited supervision over the requirements of the various departments, but the wishes of the department heads have been met so far as appropriations will permit.

Appropriations for paper, supplies, printing and binding are made bi-yearly based on statement prepared by Superintendent of Public Printing and Binding which is in turn based on the statements made up by departments checked against past experiences.

The present appropriations for paper and supplies and printing and binding apply to May 31st, 1923. The next appropriation will be made in January, 1923.

The present contract for paper and supplies applies to June 30th, 1923. The next contract will be awarded on the first Monday in June, 1923.

The present contract for printing and binding applies to June 30th, 1923. The next contract will be awarded on the fourth Tuesday in February, 1925.

Effect of Present Methods.

Just what the effect of the present methods is in dollars and cents of loss or gain to the State it is impossible to say. Its effect, however, on the paper, printing and binding industry and such part of the public as has knowledge of the situation is obviously bad.

The present specifications which are part of the law of the State are so loosely drawn as to definitely prohibit any conservative business man from bidding for the work. Neither the Superintendent of Public Printing and Binding nor the printer himself can say with certainty what will be the result in dollars and cents to the State or to the printer of any given contract. Whether it will be profitable or otherwise is entirely dependent upon the circumstances of the work done and the interpretation placed upon the law. Under existing conditions it is literally necessary for the successful bidder to avail himself of every possible advantage as an offset to the disadvantages he must inevitably suffer.

Many of the items are based upon unit rates without regard to quantity. In some cases there is only one price per hundred for a hundred or a hundred thousand of a given form. Obviously if there are many short runs, the printer will fare badly. On the other hand, if there are many long runs, the State will fare badly. Also, the same piece of work may be charged under one or another section with a maximum difference in the price received. There is in fact in the law itself every opportunity for injustice and corruption.

Feeling that nothing will be gained by criticism of present methods, no effort has been made to develop their weaknesses but I have, through the co-operation of Mr. Miller, present Superintendent of Public Printing and Binding, selected two cases representing opposite extremes of their outstanding weaknesses for such use as you may care to make of them in bringing about a realization of need for change.

The first case is with reference to printing, perforating and tableting 800,000 forms "School Exclusion Notices" size 8 x 10, printed on two sides. The perforation is not punched but printed at the same time as the rest of the form. The sheets are tableted in blocks of 20 making 40,000 pads. Paper is furnished by the State.

The price paid by the State for this work was \$3,808. The actual bill for the same is as follows:

Printing 2 sides $\frac{1}{4}$ folio @ 80¢ per		
100.....	\$ 6400.00	
Perforating 800,000 perforations @		
15¢ per 100.....	1200.00	
Tableting 40,000 tablets @ 15¢		
each.....	6000.00	
	<hr/>	
	13600.00	
Less 72%.....	9792.00	3808.00

A committee of representative printers of the City of Philadelphia, through courtesy of the Typothetae of Philadelphia, have estimated that a proper price for this work would be \$1227.49. The items of their price for comparison with the above bill are as follows:

80,000 copies "Temporary School Exclusion Notice", printed two sides in black ink, press perforation, 1 cut, tableted, 20 to tablet. Size 8 x 10 $\frac{1}{16}$.		
Composition, lockup and electros.....	\$ 93.24	
Presswork, 8 sets (16 pp.) on (Press perforation) 100 M impressions.....	584.25	
Tableting, 40 M, 20 to pad.....	550.00	
	<hr/>	
	\$1227.49	

The second case is 1800 copies of "Motor Vehicle Registration," Part 5 issue of January, 1919. This issue of 1919 instead of the last issue of 1922 is used because the bill for the 1922 book has not as yet gone through and this is the most recent issue of which Mr. Miller could furnish me both a bill and sample. The job consists of a wire-stitched, pamphlet-bound edition 6 x 9 of 386 pages.

The price paid by the State for this work which was done under the previous contract was \$393.19. The actual bill is as follows:

Ems plain 1,856 @ 50c per M.....	\$	.93
Ems 4 col. 1,948,800 @ 75c per M...		1461.60
Ems 5 col. 383,670 @ 90c per M....		345.30
Time alterations 40¾ hrs. @ \$1.00 per hr.....		40.75
Printing 43,200 impressions @ 15c per 100.....		64.80
Printing and tipping 1,800 Title Pages @ 50c per 100.....		9.00
Folding, gathering and stapling 43,200 sheets @ 8c per 100.....		34.56
Covering 1,800 Books @ 50c per 100...		9.00
		<u>1965.94</u>
Less 80%.....		1572.75 393.19

A committee of representative printers of the City of Philadelphia, through courtesy of the Typothetae of Philadelphia, have estimated that a proper price for this work would be \$3389.71. The items of their price for comparison with the above bill are as follows:

1,800 copies "Motor Vehicle Registration" 386 pages inside and one page of cover, printed black ink, side wired, glued cover. Size 6 x 8⅞.	
Composition—76 pp. 5 column tabular matter (as 6 point 5088 ems @ \$2.20 per 1 M ems) @ 11.20 per page.....	\$ 851.20
308 pp.—2 column plain matter (as 6 point 4992 ems @ 1.30 per 1 M ems) @ 6.50 per page.....	2002.00
3 pp. (cover, Title and Blank) @ 2.40 per page.....	7.20
Presswork—Make ready and run—12 forms (32 pp.) @ 32.50.....	390.00
Cover and 2 inside pp.—2 forms @ 5.28 per form.....	10.56
Binding—Twelve 32 pp. signatures @ 8.50 per signature and one 2 pp. @ 1.75.....	103.75
Shipping.....	25.00
	<u>\$3389.71</u>

In the first case the State paid \$2,580.51 more than it should have paid, and in the second the printer received \$2,996.52 less than he should have received.

Discussion and Recommendations.

A considerable part of such recommendations as I would ordinarily make with reference to the procuring of paper, printing and binding would apply equally to any other item purchased by the State. I understand there is a special committee which will deal with the subject of procurement at large. I have, therefore, limited my investigation and report to the more technical phases of paper, printing and binding; in other words, very largely to specifications which is the only feature in which the purchase of paper, printing and binding is different from that of many other commodities and services.

STATE-OWNED PLANT.

State ownership of its plant for printing and binding has frequently been advocated, as also the use of prison labor for this work. This involves a question equally applicable to a large variety of commodities and services and is, therefore, outside of the scope of this report.

LABOR POLICY.

The question has also been raised as to whether certain labor requirements should not be prescribed in connection with printers and binders doing State work. This again is applicable more or less to all State work and, therefore, is outside the scope of this report.

BULK PURCHASE OF PAPER.

The State now buys its paper in bulk and furnishes it to the printer or binder. The purpose of this method is to save the profit which the printer or binder would ordinarily charge for furnishing paper. While there is undoubtedly some saving to be made in this connection, it is very much of a question whether the saving is not more than offset by the cost of storage and handling, and record-keeping incidental to an adequate control to insure the State against loss through theft and carelessness.

The average value of the stock of printing paper necessary to be carried by the State under the present plan is estimated by Mr. Miller, present Superintendent of Public Printing and Binding, to be equal to something less than a year's requirements. On the basis of interest alone, the State could afford to pay the printer a profit of 5 or 6 per cent.

While it is customary among large consumers of printing paper, such as publishers, to purchase their paper and supply it to the printer or binder, this is usually done only in connection with large items such as periodical publications and large editions of books, catalogues, etc. It is unusual, even for publishers, to carry a variety of paper stock sufficient to meet their general requirements.

RECOMMENDATION:—*That the State discontinue its present practice of furnishing its own paper in connection with printing and binding and thereafter contract for each piece of printing and binding as a unit, including paper.*

STANDARDIZATION.

Where style of composition, sizes of forms and books, and grade of paper used is a matter of evolution, there is inevitable waste. While evolution is the natural process of progress, to be effective, its inevitable extravagances should be checked and rectified at frequent intervals.

Layout of Composition.—There is very great economy to be made through the proper layout of matter so as to avoid unnecessary columns which require justification. The difference between the "List of Motor Vehicle Registrations and Licenses," Part 6, issued in 1922 as compared with the issue of January, 1919, illustrates what can be done in this connection. In this particular case there has been a saving of only one justification, but according to the technical interpretation of the Union and the prices existing in the present contract, there has been a substitution of one column for five which means a saving of almost half of the cost for composition.

All of the State work can very readily be brought within a limited number of different styles and forms of composition selected with special reference to the needs and possible economies in each particular case. If the prices in the contract are made to refer to these styles and forms of composition, there will be no room for difference in interpretation as to price. In the 1919 Motor Vehicle Registration List the printer has charged for double price matter because there are five columns. Properly this price should be based on straight matter with an additional amount for the character of the matter, that is, figures and proper names and an additional amount for one extra justification. While there are five columns there are only two justifications.

RECOMMENDATION:—*All of the State work should be brought within a limited number of different layouts and styles of composition. These various forms should be standardized and all specifications and orders should state the style of composition required in terms of these standards.*

Paper Sizes.—The size of forms and books is more often than otherwise determined by circumstance or the whim of an individual. The unnecessary size of forms, in general, in proportion to the matter contained on them and to their use, will be apparent to anyone who will look for it. On the other hand, sizes determined in this way often cut to waste from standard mill sizes.

Thanks to the energy and efforts of the Committee on Simplification of Paper Sizes appointed by the Bureau of Standards of the Department of Commerce and the trade associations represented by its membership, standards have now been established both for mill sizes and the units into which the mill sheets can be economically cut. A very substantial saving can be made through the adoption of these standards and seeing to it that the sheets are made no larger than required for the purpose for which they are to be used.

RECOMMENDATION.—*Standard sizes consistent with the recommendations of the "Committee on Simplification of Paper Sizes" should be determined upon for all forms and books, and all specifications and orders should be limited to these standard sizes.*

Grades of Paper.—The quality or grade of paper to be used is ordinarily determined on the basis of appearance and feel. It is sometimes torn and sometimes mechanically tested for bursting strength, but seldom with definite reference to the needs of the form or book in which it is to be used. Thanks to the efforts of certain of the paper manufacturers and the Bureau of Standards at Washington, standards have now been established by means of which paper may be selected according to the use to which it is to be put.

The Bureau of Standards at Washington, several of the universities and a number of private laboratories will now furnish scientifically made tests of paper, covering folding strength, tearing strength and tendency to discoloration and depreciation or what is sometimes spoken of as longevity. On the basis of these tests

it is possible to select the most inexpensive paper which will meet the requirements of the form or book in which it is to be used.

Tearing and folding strength and longevity are the principal factors in the cost of paper. Where only such of each of these qualities is used as is required to meet the needs of the form or book in question, the saving over the method of selection by appearance is very great. In a number of concerns where each form has been studied to determine the folding and tearing strength and the longevity requirements of the use to which the form is to be put and paper has been selected on this basis, there has been a saving in every instance of more than 25% in the cost of paper. In some cases the saving has gone as high as 50%. These standards are not altogether practical for book papers but other standards on the same lines may be set up which will be helpful though somewhat less effective.

RECOMMENDATIONS:—1. *A limited number of grades of paper having different folding and tearing strength and longevity which in their range will meet the requirements of the State printing and binding should be determined upon.*

2. *Manufacturers and jobbers of paper should be invited to submit samples of their standard brands of paper for classification according to these grades. No writing paper should be accepted unless water marked with a well established water mark of a reliable jobber or mill.*

3. *These samples should be analyzed and a revised list of brands which may be used for each of the standard grades issued from time to time.*

4. *All specifications and orders should state the grade of paper required in terms of the established standard grades and the printer or binder should be permitted to use any brand of paper which has been previously classified by the State as coming within the required grade.*

BUREAU OF STANDARDS.

In writing specifications and setting standards special consideration should be given to the following points as being those in connection with which opportunity for misinterpretation is most apt to occur:

The opportunity for time work should be reduced to a minimum and such as may be unavoidable should be specifically stated to be

actual man hours. Corrections in straight matter should be put on a per line basis.

There should be one price for the first one hundred impressions in the case of press work and all repetitive operations, and another price for additional hundreds within one order. In the case of press work, provision should be made for electrotyping so that the State may use its own discretion as to whether it is cheaper to make a long run of one or two up or a short run of four or more up. Tables for press work covering these and other variations have been worked out in other states and they in connection with the experience of these states should be used as a guide.

It should be specified that perforating is to be paid for extra only when actually punched through in a separate operation from printing.

RECOMMENDATION:—*That a bureau of standards for paper, printing and binding be created to set up the foregoing standards. This bureau may be a unit of a department of standards for all of the State's requirements but should be headed by someone well versed in the making and application of standards and he should be required to co-operate with the Superintendent of Public Printing and Binding or whoever may be charged with the current work in connection with printing and binding.*

This bureau should study the State's needs in the matter of paper, printing and binding and also forms and books used in the past, to the end of eliminating unnecessary or undesirable matter and establishing economical and effective standards for the determination of style of composition, size and grade of paper and binding requirements for state work.

WORK GROUPED ACCORDING TO MANUFACTURING REQUIREMENTS.

RECOMMENDATION:—*Work should be grouped in classes according to the equipment of the average establishment which might care to compete for it; for example, all blanks and circulars, books and pamphlets, cards, envelopes, tags, etc., should be put in separate groups so that they may be bid for separately by the concern best qualified to do the work without the necessity for subletting.*

TERM OF CONTRACT.

Whether the term of contract should be for one or more years is very difficult to determine with certainty. Where extensive facilities are required in the immediate vicinity of the Capital, a short period of contract definitely limits the number of concerns who would be justified in competing for the work. On the other hand, with changing commodity prices and labor conditions, it is very difficult to determine a schedule of prices which could be equitably applied for a longer period of time. In all matter other than the Legislative work necessary to be done in the vicinity of Harrisburg, there is a distinct advantage in the contract being made for one year only.

RECOMMENDATION:—That the period of the contract for Legislative and other work necessary to be done in the vicinity of Harrisburg be made optional with the bidder; in other words, that they be asked to submit separate bids on the basis of one, two and four years, but that all other work be on the basis of one year.

CURRENT SUPERVISION.

All reference to the routine work involved in the sending out of specifications, the awarding of bids and the making of contracts has been purposely omitted from this report as being equally applicable to all other procurement. There are, however, certain technical phases of the work which will require the supervision of someone experienced in printing and binding to do the work which the present Superintendent of Public Printing and Binding is now doing. The same person should not, however, be responsible for both standardization and supervision of current work though each should work co-operatively with the other.

Each piece of printing and binding after having been authorized by the Budget Department should be considered by the person in charge of current work on its own merits as supplementary to the more general consideration given it by the Bureau of Standards. First, the need for the work should be considered and passed upon, then the extent of its content, the quantity required, the style of composition, size and grade of paper to be used, and finally it should be made to conform to and be expressed in terms of the established standards.

This should not be done in a way to make the work cumbersome or delay its execution but rather as a service to the requisitioning departments. In practice, very large economies have resulted from this sort of supervision. Usually it is objected to at first but if the supervision is tactfully done, it very soon comes to be regarded as an indispensable service.

RECOMMENDATION:—*That all work requisitioned be gone over with a view to possible curtailment and be expressed in terms of the established standards before being sent out for execution.*

DOUBLE CHECK.

In drawing standard specifications which must be applicable to the large variety of work required by a state, it is difficult to avoid the possibility of applying alternative specifications to the same piece of work or construing the same specifications differently under different conditions.

It has been recommended that the Superintendent of Public Printing and Binding shall state on the order the standards and rates under which each piece of work shall be performed so there can be no room for difference of opinion in this connection after the work has been performed. It is also desirable that the bill including the classification of the work be subjected to review by someone outside of the Department of Purchase before payment.

The classification of the Superintendent of Public Printing and Binding made in ordering the work must necessarily stand even though found to be incorrect, but such a check will serve to prevent a repetition of any such error.

RECOMMENDATION:—*That all bills be audited by someone outside of the department before payment for classification of work under the specifications of the contract as well as for application of the rates and the figuring of the bill.*

Loose classification of work according to specifications and loose interpretation of specifications is second only to loose specifications themselves as a source of possible corruption and should be carefully guarded.

DETAILS OF METHOD.

The carrying out of the recommendations embodied in this report involves a very considerable preparation, and the time and

attention necessary for this work should not be underestimated. While some advantage may be gained through cursory application of the methods suggested, to be properly effective they involve very considerable preparatory work which must be done with meticulous care.

It would be desirable if an organization like the United Typothetae of America, which is free from political and local influences, could be induced to make a study of the procurement of paper, printing and binding for states and municipalities and prepare standards and standard specifications, together with standard contracts and a standard practice for state and municipal printing which might be used as a basis for the work to be done in Pennsylvania. They might also very well outline the major features of laws which should be enacted to make the plans which they suggest effective.

With the body of information and practical examples which a study of this character would develop, and especially with standards and a standard practice developed out of such a study before you, the problem of adapting them to the particular needs of the State of Pennsylvania would be relatively small.

I took this matter up with a member of the Advisory Committee who is also a member of the Executive Committee of the United Typothetae of America and he thinks it quite possible that the Typothetae would be willing to undertake this work.

DRAFTING OF LAW.

There will in all probability be a tendency on the part of all concerned to modify the present law to meet certain features which will from time to time take on special importance due to circumstance. The present law is so fundamentally bad that I do not believe that much, if anything, can be gained by its modification. An entirely new law based upon standards and methods set up in advance of the drawing of the law will be required to obtain satisfactory results.

IMMEDIATE ACTION.

For the immediate present, the only practical reform that can be made seems to be through the Superintendent of Public Printing and Binding and his understanding of the function of his office.

Without having made any investigation as to the law, I believe that much can be done as things now stand. The same conditions which make it possible for the State Printer to adjust the work so as to afford him an ultimate profit will afford the Superintendent of Public Printing and Binding the same opportunity to keep the cost to the State well in bounds.

The Accident Compensation Law of Pennsylvania and Its Administration

A SURVEY

by

JOHN B. ANDREWS, Secretary of the American
Association for Labor Legislation, and MILES M.
DAWSON and E. R. HOFFMAN, Chief Examiner
of Miles M. Dawson & Son, Consulting Actuaries,
Auditors and Accountants, New York

SUBMITTED TO
THE CITIZENS' COMMITTEE ON THE FINANCES
OF THE STATE OF PENNSYLVANIA

Appointed by
HON. GIFFORD PINCHOT

DECEMBER, 1922

Acknowledgments.

The Citizens' Committee on the Finances of the State of Pennsylvania was appointed by Gifford Pinchot, then Republican nominee for Governor of the state of Pennsylvania, for the following purposes:

(1) To secure and consider the best available figures showing the money income of the state from all sources during the current biennial fiscal period; to secure and consider the best available figures showing the probable total revenue from all existing sources during the next biennial fiscal period; and to make needful recommendations as to sources of revenue and methods of taxation, with the object of avoiding additional or unnecessary burdens upon the people of the state.

(2) To inquire into the expenditures of all monies appropriated for any purpose by the legislative session of 1921; to consider the necessity for such expenditures; to estimate the probable deficits, where such exist; and to make needful recommendations for the more economical and effective expenditure of the state's funds.

(3) To examine into the present methods of appropriating and expending the money received by the state from all sources; to make recommendations as to the fiscal policies of the state; and to propose a form of budget that will assist in preventing the appropriation of monies in excess of the probable revenue.

The Committee in undertaking its responsibilities early decided that it was advisable to have special surveys made of the spending policies of each of the larger departments through an expert peculiarly qualified in each respective field.

The Committee chose as the experts to make the survey of the fiscal policies of the Accident Compensation Law of Pennsylvania and its Administration, John B. Andrews, Secretary of the American Association for Labor Legislation and Miles M. Dawson, of Miles M. Dawson & Son, Consulting Actuaries, Auditors and Accountants, New York.

Mr. Andrews has given careful attention to this subject ever since workmen's compensation was brought forward in this country and is perhaps the best informed man in the country upon the provisions of the laws of the different states and their operation.

Mr. Dawson is a consulting actuary of New York City. He is one of the leading authorities in this country and Europe on the subject of workmen's compensation and was actuarial adviser to the Governor of New York in the preparation of the New York law, to the New York Commission in putting the law into effect, and later counsel and actuary in the investigation of the operation of the New York law. Mr. Dawson is no stranger in Pennsylvania, having been the adviser of the Pennsylvania Manufacturers' Association in workmen's compensation matters and also having made two examinations for the state authorities of the Pennsylvania State Fund. He first came into prominence as the actuarial adviser of the Armstrong Committee and assistant to Charles E. Hughes, counsel for the Committee. He was also the Special Attorney Examiner of the Shipping Board through the war with Philadelphia headquarters in the Emergency Fleet Corporation.

These surveys by experts are made as reports to the Committee and the Committee has immediately released them for publication. The Committee, of course, cannot and does not take credit to itself for either the work or the recommendations. Credit in these matters is due solely to the experts and those who have advised with them.

The Citizens' Committee on the Finances of Pennsylvania.

Clyde L. King, Chairman	Hon. D. Edward Long
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Mr. Alba B. Johnson	Hon. George Woodward
Mrs. Mary Flinn Lawrence	Mr. Paul D. Wright

I. Brief Outline of the Provisions of the Law With Recommendations as to Amendments.

The Workmen's Compensation Law of Pennsylvania, enacted in 1915, as amended, provides in effect as follows:

1. *All employers (exclusive of employers of farm laborers and domestic servants) are under the law, except those who rejected it by a writing filed with the State.*

Only 112 rejections are still in force, nearly all of them small employers. Therefore, substantially all employers are subject to this law.

2. *All employers who are subject to this law are required to insure payment of compensation to injured workmen and dependents for disabilities and deaths due to accident occurring in the course of the employment.*

Failure to insure incurs a penalty of \$1 for each employee for each day. Notice of this penalty has been given many uninsured employers. But no steps have as yet been taken in the courts to enforce this provision by collecting the penalty. It would be necessary to bring suit in the name of the State.

Persons in the administration who are most familiar with the matter estimate that at least 50,000 employers have failed to insure, mostly small employers, many of them not financially responsible.

Each year claims have been filed against some of these employers. Much distress has resulted from inability to collect the compensation due injured workmen and the dependents, often a widow and her children, because the law has not been complied with by the employer.

This penalty system is not likely to be effective. In New York it was early abandoned for a provision making failure to insure a misdemeanor; by convictions there, failures to obey the law have been reduced.

But despite the danger even of a jail sentence, thousands of employers still fail to insure. And it is little satisfaction to crippled workmen, or to the widows of workmen killed in the course of employment, to see the employer sent to prison while they are

deprived of compensation due them under the law of the State. It has been suggested that this difficulty could be covered completely by causing all who do not insure voluntarily, to be insured automatically in the State Fund which should be authorized to collect the premiums by a summary process like taxes. As only about 14% of the compensation insurance in Pennsylvania is in the State Fund, this would throw the burden of all the uncollected premiums upon about one-seventh of the insured employers, greatly increasing the cost of their insurance and tending to drive them out of the Fund. This suggestion would not be feasible, therefore, unless insurance in the State Fund were the only form of insurance permitted.

3. *The statute provides that the insurance may be placed:*

(a) *With the Pennsylvania State Insurance Fund.*

For the year 1921, \$2,338,939 in premiums was paid to the Fund. Of this, \$1,153,724 was from manufacturers, commercial, and other employers and \$1,183,215 was from operators of coal mines.

The Fund received 9% of the total premiums paid in 1922 by manufacturers, commercial, and other employers and 25% of the total premiums paid by operators of coal mines.

(b) *With insurance companies authorized to do business in the State.*

There are two classes of such companies, to wit: those issuing policies in the earnings of which the insured employers participate and those issuing policies in the earnings of which such employers do not participate.

The insurance companies issuing participating policies collected during the year 1921, \$4,004,944 in premiums from manufacturers, commercial and other employers, and \$1,040,085 in premiums from operators of coal mines, being 32% and 23% of the total premiums, respectively.

The insurance companies issuing non-participating insurance collected during the year 1921, \$7,491,357 in premiums from manufacturers, commercial and other employers and \$2,434,625 in premiums from operators of coal mines, being 59% and 52%, respectively, of the total premiums.

The State Fund collects premiums 10% lower than those fixed for the insurance companies and paid, in respect to the premiums of 1921, dividends to the insured employers of 25%.

This makes a total saving, as compared with the insurance companies' rates, of 32½%.

The insurance companies, issuing participating policies, returned dividends to the insured employers averaging on the business of 1921, about 23%.

The insurance companies, issuing non-participating policies, collected premiums at the same rates as fixed for all other insurance companies, and returned no dividends to the insured employers.

The difference in the net cost to employers is chiefly due to the heavier expense rates of the insurance companies, and particularly the non-participating insurance companies, owing to the payment of commissions each year to soliciting agents and to other field expenses. The expense rates were, for 1921, as follows:

	<i>Expense Rate</i>
Pennsylvania State Fund	18%
Insurance companies, issuing participating policies . .	21.6%
Insurance companies, not issuing participating policies	41.5%

The foregoing expense rate of the Fund is computed upon its premiums, which are 10% lower than insurance company premiums; computed upon premiums equal to the latter its expense rate is only 16.4%.

The saving to Pennsylvania employers in 1921, had all the insurance been in participating companies, would have been at least \$2,000,000. The expense rate of the State Fund has risen considerably in the past three years. It is now supervised by a Board, consisting of the State Treasurer, the Insurance Commissioner and the Commissioner of Labor and Industry. Would not a Board, consisting of seven representative policyholders of the State Fund, presided over by the Commissioner of Labor and Industry be likely to make for greater economy and efficiency?

4. *An employer who has not rejected the provisions of the law, may, instead of insuring the payment of compensation, apply for permission to act as a self-insurer. This may be granted upon terms named in the law.*

Several hundred employers have been granted such permission. Many of these are large corporations, engaged in manufacture or in public service.

No figures are available to show what proportion of the total

premiums of the year 1921 their premiums would be, were they paying premiums instead of carrying their own risk. That it would be a very large sum is certain, and a large percentage of the total; the proportion of accidents indicates that it would be about two-thirds of the whole.

The Commissioner is not explicitly granted power to revoke these permits except in event the self-insurer appears no longer able to pay compensation; he should be empowered to do so, upon good cause shown, subject to review by the courts.

5. *The rates of cash compensation to injured employees provided by the law are as follows:*

<i>For accident causing</i>	<i>Rate</i>	<i>Limit</i>
1. Total disability	60% of wages	\$12 a week not to exceed 500 weeks nor \$5,000.
2. Partial disability	60% of difference in wages	\$12 a week not to exceed 300 weeks
3. Maiming injuries:		
Loss of hand	60% of wages	\$12 a week for 175 weeks.
Loss of arm	60% of wages	\$12 a week for 215 weeks.
Loss of foot	60% of wages	\$12 a week for 150 weeks.
Loss of leg	60% of wages	\$12 a week for 215 weeks.
Loss of eye	60% of wages	\$12 a week for 125 weeks.
Disfigurement	60% of wages	\$12 a week not to exceed 150 weeks.
Loss of any two or more such members	60% of wages	\$12 a week for aggregate of periods for each.

The following changes should, in our opinion, be made in these schedules and limitations:

Compensation should be $66\frac{2}{3}\%$ of wages instead of 60%; eleven American laws provide this rate and five others have established a scale of 65% or practically the same.

The present limit of the weekly compensation, \$12, is much too low. Its application, the compensation actuary of the State Insur-

ance Department finds, causes the compensation to average only about 40% of wages. Much distress to injured workmen and their families results. Higher living costs amply justify an increase to a maximum limit of \$20 a week. Five leading states already so provide.

The waiting-period should be reduced from ten days to one week; this is now in force in about 30 states. One week is long enough to shut out trivial injuries and discourage simulation; the longer period causes real distress.

The limit of payments to 500 weeks and of the aggregate amount paid to \$5,000 should be removed; 26 states have no such limit. The number of cases in which payments would exceed these limits is small, and the utter helplessness of the totally disabled calls loudly for continuing the payments throughout the period of disability. The aggregate addition to the cost in states where there is no limit to number or amount of payments has been very small.

Provision should be made for other maimings besides those named, such as the loss of fingers or toes; or better still, we think a provision might be made as in New Jersey for partial disability in all sorts of cases upon medical determination of the degree of injury. If this be not done, provision should be made for the Referee determining the degree of impairment even though the injured employee has not been re-employed or found other employment, subject to later revision upon his being employed.

6. *Medical attendance, medicines and hospital care are provided for, to be furnished by the employer during not exceeding 30 days next following the disability, the total cost not to exceed \$100.*

The language of the section seems to us to mean that the \$100 limit does not include the hospital service, but we are informed that it has been otherwise construed.

The limit to 30 days should be subject to the power of the Referee or Board to order the continuance of treatment, if the same is found to be requisite; 16 States now so provide.

The limit to \$100 appears, as it is widely reported, to suggest to some physicians or hospitals that the bill for the month's services should be \$100 and thus encourages bad practices. We recommend that the limit of \$100 be stricken out; 16 States have no such limit.

There should also be a provision that the employer supply

surgical and other appliances to aid in rehabilitating the injured workman, such as artificial limbs, hands or feet, crutches, etc. Such provision variously defined and circumscribed is made in a majority of the workmen's compensation laws.

Such must at present be paid for in Pennsylvania by the injured workman, out of his savings or his scanty compensation. Several self-insurers and some insurance companies already voluntarily provide these.

Disability due to occupational diseases should also be compensated. This is already provided by 12 American laws. The additional cost is small.

7. The rates of compensation provided for the dependents of employees killed by accident are as follows:

	<i>Rate</i>	<i>Maximum Limit</i>
1. Child or children, if no widow or widower entitled to compensation		
1 Child	30%	\$12 per week until 16 years old.
2 children	30%	\$12 total per week, the share of each ceasing on reaching 16 years.
3 children	40%	
4 children	50%	
5 or more children	60%	
2. Widow or dependent widower if no children	40%	\$12 per week for 300 weeks.
3. Widow or dependent widower with 1 child	50%	\$12 per week for 300 weeks, the 10% for child continuing to age 16.
4. Widow or widower with two or more children	60%	\$12 a week for 300 weeks, the share of each child continuing to age 16.
5. Father or mother, if no widow, widower or child if partially dependent	20%	\$12 total a week for 300 weeks.
If wholly dependent	40%	\$12 total a week for 300 weeks.

	<i>Rate</i>	<i>Maximum Limit</i>
6. Dependent brothers and sisters, if no widow, widower, child or dependent parent	15% for one, 5% for each additional, but not to exceed a total of 25%	\$12 total a week, the share of each continuing to age 16.

It is also provided that compensation already paid for disability shall be deducted from compensation payable to dependents for the death. This is indefensible. The provision should be eliminated. The increased cost would be very small.

The limits of compensation to dependents should be modified as follows:

The limit of the aggregate weekly compensation to all dependents should be $66\frac{2}{3}\%$ of wages (instead of 60%) and a maximum of \$20 per week (instead of \$12). The present limits are so low as to occasion great distress.

The limit for five or more fatherless and motherless children should be $66\frac{2}{3}\%$, not 60%, of wages; and 10% increase should be allowed for each child after the first (instead of after the second). It would add little to the cost and would give great relief.

The limit of the term of payment of compensation to a widow to 300 weeks should be removed; her compensation should continue until death or remarriage and, in event of remarriage, she should receive two years' payments in one sum in lieu of further weekly compensation. Three hundred weeks are but six years, and leaves a young widow without this support when her children need her constant attention; and there can be no excuse for abandoning a widow when old age has added to her helplessness. Eight American compensation laws cover for the entire period of widowhood.

In event of death or remarriage of widow (or the expiration of 300 weeks if that limit to her compensation is retained) compensation to children should be payable as if there had been no widow when compensation was awarded; nearly all the states so provide.

The limit of the term of payment of compensation to a wholly dependent parent should be removed; such should continue during dependency.

If there is a widow or a child or children or a widow with a child or children but the aggregate of compensation to them is lower than $66\frac{2}{3}\%$ of wages and than \$20 per week, allowance up to the maximum limit should be made to dependent parents or brothers and sisters. Most other American laws contain this provision.

Like provision to that for parents should be made for dependent grandparents. This is the usual rule in other states.

Payment should be made for the support of children until they attain the age of 18, thus affording opportunity for their better education; payment is provided to age 18 in a number of American compensation laws.

8. *The provision for defraying the expenses of funeral and burial plus medical attendance, including hospital care, for the last sickness, is limited to \$100.*

This sum should be applicable solely to defray expenses of funeral and burial; all of it is needed for that purpose.

9. *The "waiting period" of 10 days is held by the court to apply to compensation to dependents in event of death as well as to compensation for disability.*

A "waiting period" is required merely to avoid trivial claims and successful simulation; neither has any application to a death claim.

As applied to a death claim, there should be no waiting period; it deprives the family of compensation just when the need is freshest and keenest.

10. *The Workmen's Compensation Law has been construed to provide that the right of an injured workman to claim accrued compensation, payable (but not paid) for a period prior to his death, is a personal one, lapsing upon his death and not passing to his dependents or next of kin.*

In this way, employers and insurance carriers would escape paying considerable sums and sometimes large sums, by means of holding up settlement until the injured workman dies.

Such accrued compensation should be payable to the dependents of the deceased.

11. *If there are no dependents, the employer has only to pay the medical and funeral expenses, limited as stated.*

By requiring him in each such case to pay \$500 into a fund in the hands of the State, the sad cases of total disablement in part

due to accident in the course of employment and in part due to antecedent, uncompensated causes, can be provided as in New York, full compensation. As for instance, for loss of the second eye, causing total blindness.

The absence of some such provision may be causing some employers to discriminate against men with families in hiring employees.

For both reasons such provision is desirable.

12. *Alien widowers, parents and brothers and sisters, if residing in foreign countries, are excluded, although dependent.*

This is unenforceable in case the treaty between the United States and the foreign nation calls for non-discrimination as regards persons of that nationality.

It is in any case unfair and is also especially undesirable in a Pennsylvania statute in view of the need for foreign laborers in the factories and mines of the State.

13. *Commutation of compensation is provided for in the Workmen's Compensation Law as follows:*

"Section 316. The compensation contemplated by this article may at any time be commuted by the Board, at its then value when discounted at five per centum interest, with annual rests, disregarding the probability of the beneficiary's death, upon application of either party, with due notice to the other, if it appear that such commutation will be for the best interest of the employee or the dependents of the deceased employee, and that it will avoid undue expense or undue hardship to either party, or that such employee or dependent has removed or is about to remove from the United States, or that the employer has sold or otherwise disposed of the whole or the greater part of his business or assets. Except as provided in section three hundred and ten hereof, and in this section, no commutation of compensation shall be made."

The last sentence of this section limits this power to commute; but, in view of what is actually being done under this provision as set forth in later portions of this report, we recommend that the section be amended to prohibit specifically commutations for the following purposes or any of them:

(1) To pay funeral expenses in excess of the amount for which provision is made.

(2) To pay any debt of the person entitled to compensation or of the deceased employee.

(3) To pay a lawyer's fee.

(4) To purchase real estate unless it is a home and unless the commuted value, so allowed, will pay for it, clear of all incumbrance.

We also recommend the elision of the words "and that it will avoid undue expense or undue hardship to either party," as not needed and, as now construed, mischievous.

Comment upon these abuses, with a few specific instances, will be found in later portions of this report.

We also recommend that in any commutation of a widow's compensation it be prohibited that the portion thereof which is being paid to her for a child or children be commuted.

14. Extra-Territoriality. *The Workmen's Compensation Law* (Section 101) provides that it "shall not apply to any accident occurring outside of the Commonwealth."

The contrary is the rule in 33 jurisdictions, including every other important industrial state.

This unfortunate provision of the Pennsylvania law, we are advised, has resulted in many awkward situations, involving much distress and loss for employees, residing and hired in Pennsylvania, who are injured when without the State in the service of the employer.

We, therefore, recommend that the following be substituted for this provision:

"And shall apply to any accident occurring outside of the Commonwealth to an employee who, at the time of the accident, is performing services under a contract of hiring made within the Commonwealth."

II. Administration of the Law With Recommendations.

The administration of the law is committed to the following instrumentalities:

1. The Department of Labor and Industry, headed by a single Commissioner, which in this regard functions through:

The Bureau of Workmen's Compensation, headed by a Director, with divisions as follows:

Accident Reports.

Claims.

Adjustment.

Agreements.

Actuary (in charge of statistics, insurance and exemptions).

The Commissioner also has the custody and administration of funds appropriated by the legislature to pay compensation to injured State employees and their dependents. This is administered through the Bureau of Workmen's Compensation.

The Commissioner also appoints, with the approval of the Governor, the Referees and Supervising Referee, the Counsel and General Counsel.

2. The Workmen's Compensation Board, appointed by the Governor, having its own Chairman and Secretary; of this body the Commissioner of Labor and Industry is a member *ex officio*. The principal duties of this Board are to hear and determine appeals from decisions by Referees and petitions for commutation of compensation. It exercises to some degree the power of supervision over Referees and Counsel.

There are also important connections, some of them well-established and some of them little developed, with the following bureaus in the Department of Labor and Industry:

The Rehabilitation Bureau.

The Bureau of Factory Inspection.

The Division of Industrial Hygiene and Engineering.

A correlated institution is the Pennsylvania State Insurance Fund, in which every employer is entitled to be insured at the average net cost for his employment, with both experience and merit rating, and thereby wholly escape direct liability for claims. The Commissioner of Labor and Industry is a member of the Board supervising the State Fund.

There is some co-operation with:

The Bureau of Mines.

The Public Service Commission.

Procedure in Obtaining Compensation.

The order of procedure in making and establishing a claim to compensation is as follows:

A notice of every accident is sent by the employer to his insurance carrier.

If at least two days' disability is reported, the insurance carrier files a copy of the accident report with the Director of the Bureau.

Settlement may be made by the claimant and insurance carrier, in which case it is sent to the Bureau for examination as to whether it is in conformity with the law.

If no settlement is arrived at, a petition for compensation is filed by the claimant with the Commissioner of Labor and Industry.

Such petition is forwarded to the Referee of the district where the accident took place, and a hearing is had before such Referee.

An appeal from the Referee's decision may be taken to the Workmen's Compensation Board which may determine the same solely upon the record below or may, at its option, require or receive additional evidence.

The decision of the Board (or of a Referee if no appeal is taken) is final as to facts, except that the Supreme Court may reverse upon appeal to it, if there is in its opinion no evidence to support such decision.

To convert the award into a judgment, which is a lien upon real estate and upon which execution may be obtained, the final determination of the Board (or of the Referee if not appealed from) is filed in the Prothonotary's office.

An appeal lies to the Court of Common Pleas and from that Court to the Superior or Supreme Court, on questions of law or upon the question whether or not there is any evidence to sustain an award.

The Board has power at any time within 500 weeks to reopen any settlement or rehear any determination made by itself or by a Referee if founded upon a mistake of law or fact or if the disability has increased, decreased, recurred or temporarily or finally ceased or the status of a dependent has changed; it may then terminate or modify the compensation. It has also power to grant or deny petitions for commutation.

If a notice of accident is filed which indicates a probable claim or if the Bureau learns of such an accident, and no settlement or petition for compensation is received, the Director of the Bureau assigns the matter to the Public Adjuster for the district for investigation and report, with instructions to afford assistance to the injured workman, or others entitled, in preparing the claim.

If the claimant is not represented before the Referee or the Board by his own counsel, one of the Counsel of the Bureau (provided one is connected with that district) handles his case for him without charge and also represents him upon appeal if appeal is taken, also without charge.

No Investigation of Direct Settlements.

No attempt was made in this survey to test whether the settlements by agreement between the self-insured employer or the insurance carrier and the injured employee or dependent of the deceased employee have in fact been fair and in accordance with the law; for this more time for the investigation and the power to take testimony under oath and to require witnesses to testify would be required.

Commutation of Compensation.

We have made some inquiry as to the granting of petitions for commutation and find what appear to be serious abuses of this discretion.

Aside from the special reasons named in Sections 310 and 316 of the Workmen's Compensation Law, [i. e., as to commuting compensation of aliens residing in, or departing for, foreign countries] the Board appears to have no power to grant commutation otherwise than "if it appear that such commutation will be for the best interest of the employee or the dependents of the deceased employee, and that it will avoid undue expense or undue hardship to either party."

The word "and" we have underscored as it seems to imply that the legislature did not intend "or" which might throw the door wide open for abuses. We have recommended, however, earlier in this report, that this clause be stricken out.

Only two conditions have generally been held, throughout the world, to call for commutation, to wit: to purchase a business or tools for a trade which offer assurance of a better livelihood than the compensation supplies and seems practically as reliable, or to purchase a home or pay off the mortgage on a home.

By the provisions of Section 318 compensation is exempted "from all claims of creditors, and from levy, execution or attachment, *which exemption may not be waived.*" The only exception to this is claims for legal services which by Section 501 become a lien "or valid or binding in any respect" only when "approved by the Board."

Notwithstanding this, commutations, it is reported to us, have been approved for the following reasons and purposes:

Commuting widows' compensation (including children's) so as

to pay funeral and last sickness expenses of the deceased employee, in excess of the amount (\$100 including last sickness expenses) provided by the law.

Commuting the compensation of a disabled employee, to pay his debts.

Commuting the compensation of a widow, or of a widow and children, to pay debts of the deceased employee, or debts improvidently contracted by the widow.

Commuting the compensation of an injured employee or of a widow or of a widow and children or of a parent or brother or sister wholly dependent, in order to purchase real estate subject to a big mortgage.

Commuting the compensation of an injured employee, a widow or a widow and children to pay lawyer's fees, notwithstanding that Section 501 provides that "the Board shall fix, at the time of approval [i. e. of the fee], the proportion of *each instalment* to be paid on account of legal services and disbursements," thus plainly indicating how such payments are to be provided for. These commutations, we learn, have not infrequently been made, without requiring the amount of the fee to be submitted to the Board.

We are also informed that commutations have been and are allowed by the Workmen's Compensation Board, more or less as of course, in case the injured employee or dependent asks for it and the employer or insurance carrier consents. This is to defeat the fundamental purpose of the law, to secure such employees and dependents incomes during the continuance of such condition.

There are reported to us such flagrant abuses as commutation: to pay funeral bills for a deceased workman of virtually \$500, to pay debts of injured employees or of widows in considerable amounts, to pay \$1,000 down on a piece of real estate subject to a mortgage of twice that amount, to pay lawyers who in fact took a half or more of the commuted sum (in one instance \$955 out of \$1,910), all to the destruction or the great diminution of the already scant provision for the support of an injured employee or a widow or widower and children or a wholly dependent father or mother.

To October 1, 1922, 5,275 petitions for commutation have been filed, of which 3624 have been granted in the aggregate amount of \$3,040,938.47, of which \$1,749,593.69 was of disability claims and \$1,291,344.78 was of death claims.

Would it not be well to provide that, in the first instance, the

Referee, utilizing the Adjuster and Counsel attached to his office, determine these petitions for commutation, his determination to become final only when reported to and confirmed by the Board?

And also that the power and duty to supervise the disposition of sums paid in commutation to see that they are used for the claimant's benefit as agreed, vest in the Referee, utilizing such Adjuster and Counsel?

Jurisdiction of Bodies Administering the Law.

Except as to deciding claims for compensation which is by law assigned to the Referees in the first instance and to the Workmen's Compensation Board upon appeal, and as to determining petitions for commutation of compensation which is by law assigned to the Workmen's Compensation Board, of which he is *ex officio* a member, the Commissioner of Labor and Industry has power to direct and control the administration of the Workmen's Compensation Law.

Through the Director of the Bureau he determines in the first instance whether claim settlements are, or are not, in conformity with the law as applied to the facts.

All the files, except when transmitted to a Referee or to the Board before whom the matter is pending, are in the custody of the Commissioner at Harrisburg.

Through the Bureau of Rehabilitation the Commissioner makes provision for restoring the disabled to as high a degree of efficiency as is practicable, utilizing for this purpose information concerning cases obtained from the Bureau of Workmen's Compensation.

Through his Factory Inspectors he applies the information regarding accidents in factories, secured through the Workmen's Compensation Bureau, to strengthen the requirements for safety.

Through his Public Adjusters he seeks out injured persons who have not made settlements or filed claims, acquaints them with their rights and assists them to prepare their claims and to present them, and also investigates for the Workmen's Compensation Board petitions for commutation.

Through his Counsel and Chief Counsel he offers assistance to claimants to establish and enforce their rights.

Through his Actuary he deduces statistical information regarding accidents and regarding compensation, for the advice of all the departments of the State government and of the public.

The supervision of all bureaus and divisions and control over all their employees is in his hands, excepting only the chairman and secretary of the Workmen's Compensation Board and excepting that the Workmen's Compensation Board may give directions to Public Adjusters and to Referees.

He also has control over the renting of all offices, including the quarters of the Workmen's Compensation Board.

Conflict as to Authority.

The Board, which has thus been exercising its functions independently has been reaching out, it is reported to us, for a larger measure of control over workmen's compensation matters and over the power to rent quarters and to control employees. In consequence there has arisen a conflict between the Commissioner of Labor and Industry and the Chairman of the Workmen's Compensation Board both as to their powers and jurisdiction and as to the authority with which each ought to be clothed.

The conflict as to present powers came to a head recently when the Commissioner, in the interests of economy, enforced by the taxes collected being insufficient to cover the appropriations, transferred the Philadelphia offices from the North American Building to Fourth and Walnut Streets. The Chairman refused to treat the offices of the Workmen's Compensation Board as so transferred, and rented, in his own name, the offices he had occupied, which he now occupies with other lawyers, partly for the Board's uses and partly for his and their private practice.

He is also frank in his advocacy that the Workmen's Compensation Board be put in entire control of the administration of the Workmen's Compensation Law.

These considerations caused us to consider what opinion concerning this we should report to you; and, upon such survey as we have been able to make, we recommend as follows:

That the administration of the Workmen's Compensation Law should be vested wholly in the Commissioner of Labor and Industry, that all bureaus and divisions should be subject to his supervision and report to him; and that the Workmen's Compensation Board should be an appeal body, pure and simple, with no other function except that it may receive, or require, further evidence.

We make these recommendations—with full knowledge that

administration by a board or commission has often been satisfactory elsewhere—because the conditions here are, in our opinion, now favorable to efficient administration by means of such separation.

The supervision of Referees is, at present, in part in the Board, in part in the Supervising Referee. The Board has power to assign Referees, including the Supervising Referee, to districts.

This power the Board failed to exercise recently when a district was left without a Referee by reason of a removal due to the necessity for retrenchment although the Supervising Referee, who is reported not to be fully occupied with the duties of his office, was available. Experience has shown that the office of Supervising Referee is useless and should be abolished.

In our opinion a Public Adjuster should be attached to each Referee's office; and one of the Counsel should regularly be available at each Referee's office to advise with and aid claimants.

It is our opinion that Referees should have the authority and the duty to determine the amount to be allowed and paid under the law to lawyers, physicians, hospitals and undertakers, subject to appeal to the Board.

Concerning Departmental Failures and Abuses.

It was not possible in the limited time allowed us, to delve deeply into the matter of abuses or short-comings in the administration or defects in the laws governing the administration, but a few have come to our attention, as follows:

Practice before the Workmen's Compensation Board by attorneys occupying a suite of law offices with the Chairman.

Failure to make due inquiry into attorneys' fees and to make effective efforts to correct exorbitant charges even when they have become known.

Failure of the Workmen's Compensation Board to allow interest on withheld compensation; this encourages and rewards resistance and delay as well as penalizes injured workmen and dependents.

Infrequent meetings of the Board. The Board sits about every other month in Philadelphia, about the same number of times in Pittsburgh and, at Harrisburg and other central points of districts, once or twice a year. These infrequent sittings necessarily involve delay in paying compensation to the disabled and the dependents.

In 1921 the Board held but 30 meetings, sitting only 40 days in all. The number of cases heard was 1299, an average of more than 32 cases a day. It is unnecessary to say that this means perfunctory work by the Board.

The pay of the members of the Board (the chairman \$9,000 and the others \$8,500 per annum) is sufficient to secure good men for their full time and the Board should be in daily session ready to dispatch the matters before it.

Failure during 1922 of the Bureau to supply, and of the Chief Factory Inspector to demand, information regarding serious accidents, other than fatal, for the guidance of factory inspectors.

Appointment and continuance in office, for political reasons, of employees who have little or nothing to do, or who are incompetent. For instance, the Supervising Referee at a large salary, performing little useful service. Estimates of degree of competency in some important departments run as low as 60%, owing to these conditions over which the heads of bureaus and even the Commissioner himself profess to have little control.

It should be and will in our opinion be readily possible for the Governor and the legislature to give a courageous, resourceful and firm Commissioner of Labor and Industry such support and assistance as will largely extirpate these evil conditions.

Work and Needs of the Rehabilitation Bureau.

The Rehabilitation Bureau is promptly provided by the Director of the Bureau of Workmen's Compensation with data concerning injured employees apparently susceptible of rehabilitation.

The appropriation for its work, however, is only \$50,000 per annum, of which only about \$34,000 is of such character as to call for matching it out of the United States appropriation; this gives the Bureau only about \$84,000 per annum in all.

If the State appropriation were \$100,000 per annum, it is estimated that the maximum allotment for Pennsylvania out of the federal appropriation, to wit: about \$83,000 per annum, would be available, making \$183,000 in all—not too large a sum for this great industrial State.

The Bureau has a considerable and growing "waiting-list," because of the deficient appropriation.

The Fund for Compensation of State Employees.

An appropriation is made to provide compensation for State employees, injured by accident in the course of their employment, and for dependents of those who are killed.

This is administered, as stated earlier in this report, by the Commissioner of Labor and Industry directly.

No reserves are set up to cover future payments under the awards made by the Commissioner.

We are of the opinion that consideration should be given to whether or not it would be better to transfer this to the State Fund and to set up annually and maintain in its custody the requisite claim reserves.

Compensation for County and Municipal Employees.

Most of the counties, school districts and municipalities carry their own risk, paying compensation by appropriating moneys from time to time for the purpose; several of them are insured in the State Fund.

We are of the opinion that consideration should be given to whether or not it would be better to provide:

First, that all counties, school districts and municipalities set up annually and maintain with the State Fund adequate claim reserves.

Second, that the smaller political subdivisions (to be defined in some proper manner) provide such claim reserves by insuring in the State Fund and thus escape the possibility of incurring, by reason of too small a spread to assure an average experience, losses that would embarrass their finances.

Self-Insurers.

A much larger proportion of the workmen's compensation in Pennsylvania is carried by self-insurers than in any other State.

This is due to the presence of very extensive manufacturing industries, carried on by great and strong corporations, which, by reason of the vast numbers of their employees, have in the opinion of their directors, adequate spread to assure reliable averages of experience and can administer the determination and payment of compensation more economically and efficiently than it can be done by any public or corporate agency.

Concerning this, we think, three things should be said:

1. No such temptation to encourage commutation for lump settlements should be given in view of their very great undesirability from the public social viewpoint, as is now given the self-insuring employer by reason of the growing burden of compensation payments upon his current earnings which causes him as a matter of prudence, to desire to get rid of the claims now, instead of having them pile up against earnings of future years. Conspicuous instances of such employers frequently urging commutation, as good, sound business policy, have been brought to our attention.

2. Claim reserves should be required to be set up and maintained by such employers, ample to assure the payment of the compensation, independently of the future solvency or insolvency of the employer.

3. It should be most carefully considered whether or not it should also be required that such reserves should be set up annually and maintained in the State Fund. In this connection, it should be borne in mind that the volume of claims is not so great in the case of every self-insurer as to assure the average experience upon which the adequacy of claim reserve computations rests.

It should also be remembered that within a quarter century we have seen many an apparently impregnable corporation become weakened and insolvent; sound public policy requires that the payment of compensation be not endangered thereby.

Claim Reserves of the Insurance Companies.

Under the laws of Pennsylvania all insurance companies must show by their annual reports filed with the Insurance Commissioner that they have cash and invested resources at least equal to all their obligations including premium and claim reserves as computed or checked by the actuaries of the State Insurance Department. In case the company, being a Pennsylvania corporation, becomes impaired, it is wound up by the Department and if possible, reinsured, the reinsuring company usually assuming the obligation to pay its claims; if it is a company of another State or nation, the penalty for insolvency is that its license to do business in Pennsylvania is withdrawn.

In distributing the assets of insolvent insurance stock companies, claimants for compensation have no preference over other

creditors, including policyholders for their unearned premiums; and in the case of an insolvent mutual company, they have no preference over other creditors, excluding policyholders for their unearned premiums.

The claim reserves of such corporations, whether stock or mutual, are practically always held at their home offices; that is, if the company is of another State, the claim reserves for compensation payable to residents of Pennsylvania are not within the State and cannot, in event of insolvency, be applied directly to the payment of compensation here.

In any case, in the winding-up of such an insolvent corporation, the payment of compensation is withheld until a "dividend" is declared from the assets realized in cash, payable to all creditors of the same class as to preferences, alike. This substantially defeats as to such claimants the purpose of the Workmen's Compensation Law which is to provide certainly reliable income to the disabled and to the dependents of the dead.

These considerations lead us to recommend that the insurance companies covering workmen's compensation under the laws of Pennsylvania be required to set up annually and maintain in the State Fund adequate claim reserves in respect of all liability for the payment of compensation provided for by the Workmen's Compensation Law of this State.

In this connection it should be noted that many insurance companies that were for a long time indubitably sound and solvent, have failed in the last quarter century.

Disposition of Claim Reserves of Insolvents.

So long as the self-insured employer or the insurance company, required to set up and maintain adequate claim reserves in the State Fund, remains solvent and pays compensation as it becomes due, the funds so deposited remain their property but pledged to secure the payment of the compensation and the State Fund would have, as respects such reserves, no duty except to hold them safely and to test at frequent intervals by proper actuarial means their sufficiency.

But, upon the insolvency or continued failure to pay compensation on the part of the self-insurer or insurance company, the

State Fund would proceed to pay such compensation, applying to such payment the claim reserves so maintained with it.

In a very recent case of such insolvency, it has proved necessary to resort to the State Fund in just this way, but by arranging to make good the claim reserve after the failure; the claim reserve, we think, should be in hand, instead of thereafter to be provided.

Should Non-Participating Insurance be Permitted?

The State Fund and the insurance companies, whether stock or mutual, operating on the participating plan, have furnished reliable insurance of workmen's compensation in Pennsylvania at from 15% to more than 30% lower cost than the premiums payable to insurance companies operating on the non-participating plan. The average saving is about 25%.

In the course of this survey in Pennsylvania the question was frequently asked of us: "Why permit non-participating insurance at all?"

Undoubtedly all the increases in the rates of compensation required in order to bring Pennsylvania up to the reasonable standards already in force in many States, could be put in force without increasing the cost of insurance in the State Fund or the insurance companies, issuing participating insurance, above the rates charged by the others for non-participating insurance.

Why collect from employers millions of dollars for the remuneration of field men who solicit employers to insure that are already compelled by law to insure, and to build up the surpluses belonging to stockholders of such companies, instead of paying it to injured employees and the dependents of deceased employees?

Stringent Provisions Required to Keep Down Lawyers' Fees.

Reference has already been made in this report to the abuse of commuting compensation in order to enable lawyers' fees to be paid.

We are informed that only about seven per cent of the claims come before the Referees and that but a small part of these are appealed to the Board. Very few, indeed, involve appeal to the Superior or Supreme Court. The services of lawyers before

Referees and the Board are very seldom actually required and, when rendered, are usually of little real value.

It was the intent of the legislature in providing compensation that it could and would be paid without litigation or the intervention of attorneys.

The law specifically provides for the Workmen's Compensation Board approving the fee.

This approval, we are informed, is usually not applied for. Lawyers frequently and indeed generally bargain with their clients and obtain their fees without the Board fixing the same.

Among the cases of gross abuse in this regard that have been brought to our attention are the following:

By the Director of the Bureau, that a Polish consul had called attention to the deduction of \$955 from a \$1,910 award, by a Philadelphia attorney as his fee.

By the Secretary of the Board, that a Scranton claimant who had been awarded \$900 complained to him that his attorney had taken \$500 out of that sum.

By the Chief Adjuster, that a Harrisburg claimant had complained of the deduction by his lawyer of \$125 out of \$189 awarded him.

By the Counsel at the Philadelphia office, that a dependent mother had complained that her lawyer had obtained for her an award which she refused to accept and is still contesting, and that her lawyer had, notwithstanding, secured the payment of the arrears at this unsatisfactory rate, had pocketed it all and then left her to do as she liked.

In only one of these cases, that reported to us by the Chief Adjuster, had anything as yet effective been done about it; in that case the lawyer gave up \$50, still retaining \$75 as his fee for securing \$189.

Many of these cases are commutations. We recommend that the law provide that commutations in all cases be denied if any person appears for pay. Claimants are very easily preyed upon in this matter as they have little notion of the comparative value of weekly payments and of a lump sum and the latter, if thousands or even hundreds of dollars, seems comparatively so big as to dazzle them and confound their judgment.

In other cases the lawyer drags out the hearings and proceedings until there is much compensation in arrears and when the award is finally made and this is secured in a lump sum, he helps

himself out of that. By this means a double injury is done his client, the excessive fee charged and the long delay during which compensation should have been paid him.

In all cases, the Board or the Referee before whom the hearing is held, should have the power and the duty to require the lawyer to disclose what his agreement with the client is and to submit his fee to the Board for its determination; and this duty should be performed and this power be exercised upon all occasions, without fear or favor.

Report on the
Pennsylvania State Departments
of Game and Fish

TO THE CITIZENS' COMMITTEE ON
THE FINANCES OF THE STATE
OF PENNSYLVANIA

By

FREDERIC C. WALCOTT

Director of the American Game Protective Association
Formerly Director of Connecticut State Board of Fisheries and Game

DECEMBER, 1922

I have familiarized myself for the last two years with the printed reports of the work on Fish and Game in Pennsylvania, but in order to carefully check my own impressions and to assist me in a study of the work of these two commissions, I asked Ray B. Holland, formerly under Dr. Nelson, Director of the Biological Survey at Washington, now Vice-President of the American Game Protective Association, who has spent most of his life on work of this sort, to review the Pennsylvania game situation; and John W. Titcomb, formerly with the Bureau of Fisheries at Washington, subsequently Fish Culturist of New York and now superintendent of the Board of Fisheries and Game of Connecticut, to investigate the work of the Pennsylvania Fish Commission. As the work of these commissions is kept separate in the records of the state, I shall deal with them as two distinct problems, although there should of necessity be the closest co-operation between not only Fish and Game, but the Park and Forestry Departments of the state. These four departments have many aims in common and must, by the very nature of their work, come into close association, each with the other. The Departments of Forestry, Fish and Game particularly are working in, and over, almost the same territory.

What is the Game Commission Accomplishing? Let me say at the outset that in securing the material for this report, Mr. Holland and I have had the cordial co-operation of Dr. Charles B. Penrose, Chairman of the Commission, Mr. John M. Phillips, Mr. W. B. McCaleb and Mr. Seth E. Gordon, Secretary of the Pennsylvania Board of Game Commissioners.

In order to get some appreciation of the work Pennsylvania is doing in Game distribution and propagation, I am attaching hereto a brief comparative record (marked Table "A") between Pennsylvania, New York, Massachusetts and New Jersey. These figures are complete as far as it is possible to make them from the public records of these states. This table shows at a glance that Pennsylvania is getting more important results in the matter of game distribution and propagation than any of her neighboring states and is getting better results in the amount of game killed than any of the other states, and as this estimated amount of "game killed" shows a rapid annual growth, it is fair to assume that the supply of game is increasing materially rather than diminishing.

I think no one can successfully dispute the statement that Pennsylvania stands at the head of the eastern states in the protection and the propagation of her game resources. Estimates of the game killed are necessarily incomplete and consequently inaccurate, but all the experts who are familiar with the work of the eastern game commissions, so far as I have been able to get their opinions, rank Pennsylvania first, not only in the total amount of native game killed, but in the amount of native game killed per capita. Pennsylvania cannot, of course, be compared with such states as Virginia, North Carolina and Louisiana with their vast flocks of migratory water-fowl which winter on the waters of these states.

The chief questions then which concern us for the purpose of this report are:

- (1) Is it important for a state like Pennsylvania with vast tracts of wild and semi-wild land to conserve and develop her game resources for the people of the state?
- (2) Has the Board of Game Commissioners been administering their department wisely and economically?
- (3) Is the present organization, consisting of two separate commissions, one for game and one for fish and each commission composed of several members, the most efficient that can be devised?

Before attempting to answer these three questions, let us review some of the facts as compiled for me by Mr. Holland and as furnished by Mr. Gordon. The following facts and statistics apply to the fiscal year 1921, unless otherwise specified. The 1922 records are naturally not yet complete. In some cases figures for 1920 have been included for the sake of comparison.

TABLE A.

	New York	No. per 1000 pop.	Pennsylvania	No. per 1000 pop.	Massachusetts	No. per 1000 pop.	New Jersey	No. per 1000 pop.
Population, 1920.....	10,384,144		8,720,159		3,852,356		3,155,374	
Number of square miles.....	49,204		45,126		8,266		8,224	
Density population, 1920 (No. per square mile).....	14 P. C.		14 P. C.		14 P. C.		14 P. C.	
Percent growth, 1910-1920.....								
Season, 1920.....								
Pheasants distributed.....	9,911	1.00	3,961	.04	3,901	1.00	6,000	1.90
Pheasant eggs distributed.....	91,735	9.00	31,967	3.60	3,452	.89		
Pheasants killed.....	35,855	3.50	23,000	2.60	1,977	.51		
Ruffed grouse killed.....			507,600	58.00				
Deer killed.....	20,000	2.00	3,000	.30	833	.20	522	.16
Ducks killed.....	123,601	11.00	40,000	4.50				
Number licenses issued, fish and game.....	263,973	25.00	433,963	49.00	140,242	36.00		
Total revenue from licenses.....	\$284,734.18	\$27.40	\$449,490.00	\$51.54	\$125,139.75	\$32.74	\$147,925.72	\$46.88
Game farm disbursements.....	\$85,554.63	\$3.41	\$62,486.09	\$7.17				
Approximate cost per pheasant distributed.....	\$366,943.57	\$35.50	\$246,051.88	\$28.10	\$3.40			
Total disbursements division fish and game.....			\$220,000.00					
Estimated value of fish.....								
Estimated value game killed.....			\$5,514,164.00					
Average annual fish and game commission ex- penses, 1906-1916.....	\$586,447.74		\$308,537.00 (game only)					

*Pennsylvania buys her pheasants at about \$3.50 a piece. At present eight-week-old birds cost \$2.00 to \$2.50. Adults, \$2.75 to \$3.00. Massachusetts owns 100,000 acres public land.

Oregon has recently purchased 1,000,000 acres of public land, all of which will be held as game refuges.

Forest reservations New York State, which includes within its area the Adirondack Park, Catskill Park and the Lake George Islands; John Brown's farm; St. Lawrence reservations or International Park; state reservations at Saratoga Springs; Cuba reservations; the Curtiss Game Preserve; and the state nurseries. Fish Hatcheries and Game Farm about 1,838,322 acres of which about 255,000 acres is land under water. Comparatively speaking this tract is twice the size of the State of Rhode Island and larger than the State of Delaware. It is bounded by more than 9,000 miles of private land. Minnesota has 55 game refuges exclusive of state parks with an aggregate area of 2,557,430 acres.

Report on Game Conservation in Pennsylvania

By RAY B. HOLLAND

Vice-President of the American Game Protective Association

1. The amount of different species of game killed in Pennsylvania and the cash value of that game is:

1921	Number	Total Weight
Deer.....	4,840	629,200 lbs.
Bears.....	510	102,000 "
Rabbits.....	3,600,000	7,200,000 "
Squirrels.....	500,000	500,000 "
Raccoons.....	34,200	307,800 "
Wild turkeys.....	4,654	55,848 "
Ruffed grouse.....	325,000	487,500 "
Ring-necked pheasants.....	15,400	42,350 "
Virginia quail.....	49,885	18,708 "
Hungarian quail or partridge.....	500	313 "
Woodcock.....	35,250	13,218 "
Wild waterfowl.....	46,780	140,340 "
Total weight.....		9,497,277 lbs.
Reduced to tons.....		4,749 tons
Value about \$3,000,000.		

2. How are these figures reached?

Data collected through county officers and later checked by individual reports from sportsmen, give us the above figures.

(Pennsylvania has a stub on her hunting licenses similar to Minnesota's, on which the gunner is supposed to list the amount of game killed by him each year and send the report to the commission. Minnesota's system makes this compulsory. Pennsylvania does not, with the result that the commission only gets about 10 percent of the stubs returned. Each Pennsylvania game protector collects all data possible and estimates the number of each species of game killed in his district. They then tabulate the reports received from gunners, take the percent of such reports received, and from that estimate the total kill. Mr. Gordon states that in practically every instance the estimate of their officers was lower than the figure arrived at from the data returned by sportsmen, and in each case they took the conservative figure.)

3. PHEASANTS. No general distribution of pheasant eggs was made during 1921 or 1922. About 5,000 eggs used each year for hatching at refuges. During the 1920 season 32,500 eggs were distributed.

4. The applications from sportsmen for live pheasants to be liberated and the number of birds put out in 1920 and 1921?

From 3,000 to 6,000 ring-necked pheasants per year were distributed to the southern half of state through the county protectors.

	1920	1921
5. Receipts from resident hunters' licenses.....	\$432,240	\$462,371
Less 10% to officer issuing licenses.....	389,016	416,133.90
6. No trapping licenses are required in Pennsylvania at the present time.		
7. Receipts from non-resident hunting	1920	1921
licenses, 1,725 @ \$10.....	\$17,250	1,761—\$17,610
Less 5% to officer issuing licenses (net).....	16,387	16,629

8. The receipts from fines, including propagating licenses, taxidermists' licenses and other fees, exclusive of hunters' license fees, are:

1920	1921
\$55,278.62	\$69,963.25

9. The number of cases prosecuted was, during

1920	1921
1,895	2,884

10. About 25 more cases prosecuted each year than convictions.

11. The amount of vermin killed, showing species, from the bounty records, was:

	1920	1921
Wild cats	314	308
Gray fox	4,527	3,372
Red fox	2,295	3,375
Mink	2,253	3,753
Weasel	53,873	59,755

12. The total amount of bounties paid for:

1920—\$125,174.00
1921— 128,299.50

13. What provision is made for caring for game in winter? Game is fed in a wild state by officers and sportsmen co-operating. Shelter and grain supplied requiring from \$5,000 to \$8,000 per year.

14. There are no state game farms in Pennsylvania. The commission prefers to purchase game and eggs for the game refuges.

15. The number of square miles in the state is 45,126.

16. The total population and density of population per square mile from the 1920 census was 8,720,159—170.

17. The acreage in sanctuaries is—state forests 46,000; on leased lands 14,000; on lands purchased by game commission 12,197; auxiliary refuge lands 4,375. Total 76,572 acres.

18. The acreage in public shooting grounds is open to shooting under control of the game commission, 53,612 acres; owned by Department of Forestry, 1,077,095; exclusive of refuges, or a total of 1,132,707 acres.

19. What is your system of land rental?

In some cases we pay yearly taxes; others flat yearly rental, preferably the latter.

20. The average cost of lands purchased by the game commission to date is about \$2.63 per acre.

21. Where needed, planting has been started and continued so far as funds permit. Our endeavors are based mainly on fire prevention, and in most cases reforestation will take care of itself. Much attention has been paid to the planting of fruit and nut-bearing trees and shrubs to furnish food for the game.

22. Most of the lands should be self-sustaining in 25 or 30 years and in 60 to 75 years should bring in a considerable revenue to the game commission without sacrificing the game.

23. We have ten traveling game protectors (salaried) who are supervisory officers.

24. There are 64 game protectors with 5 assistant game protectors.
25. There are 30 refuge keepers. Additional ones are to be added as additional refuges are completed.
26. The total expense of policing is as follows: Salaries and expenses of traveling protectors, county protectors and assistant protectors about \$200,000 per year.
Salaries and expenses of refuge keepers approximately \$40,000 per year.
Special deputies in the fall of the year, from \$20,000 to \$30,000 per year.
27. The game commission has so far expended \$105,339.52 for purchase of lands exclusive of cost of titles examinations and surveys.
28. The annual land rental varies from \$4,000 to \$4,500 per year.
29. Total expense for game birds and eggs purchased:
1920—\$56,259.91
1921— 62,349.27 Expressage additional
30. The miscellaneous and other expenses of the department were:
From \$70,000 to \$80,000 per year for salaries of office force, expressage on game, buildings at game refuges, feeding game in winter time, caring for game held for liberation, attorneys' fees, postage, and purchase and upkeep of automobiles and motor boats owned by the department, etc.
31. Total receipts of the department from all sources:
1921—\$508,554.75
1922—receipts will be slightly higher
32. Total disbursements of the department:

	1920	1921
General activities	\$411,496.70	\$527,588.40
Bounty system	132,572.72	137,763.51
Total	\$544,069.42	\$665,351.91

(You will note that the disbursements are larger in 1921 than the receipts. Mr. Gordon tells me that the 1922 receipts and disbursements will be practically equal. Formerly there accumulated a large surplus in the funds of the game department. Then came the refuge and public shooting ground plan by which this money was expended. 1921 cleaned up this surplus, and unless some method is arrived at to increase the receipts of the department, it will be impossible for them to continue their wonderful system of establishing refuges with public shooting grounds throughout the state.)

33. All receipts from the work are deposited in a special fund in the state treasury and are drawn upon immediately without awaiting specific appropriations each session.
34. The total number of acres in the state still available for carrying out the game refuge and public shooting ground plan are from 5,000,000 to 8,000,000 acres in addition to lands already owned.

Mr. Gordon lays especial stress on the fact that in addition to their regular work of protecting game and restocking and caring for the game in winter, they have paid special attention to laws protecting song and insectivorous birds. Their field organization also assists materially in the enforcement of the fish laws, the dog

license law and the prevention and extinguishment of forest fires. Each officer in the game department is an ex-officio fish and fire warden.

The records of the department show that the value of the fur taken in Pennsylvania in 1921 amounted to about \$2,500,000. Add to this the \$5,000,000, which I place as the food value of the game killed, and you have a yield of \$7,500,000 from this work without giving any consideration whatever to the immense value of hunting to the citizens of the state and to the enormous value represented by the protection of song birds.

The reports of the game commission for the years 1920 and 1921 which I have been studying, together with a paper presented by Mr. Gordon before the State Conservation Council, bring out some salient facts.

In the state of Pennsylvania the state police are entrusted with the enforcement of the Conservation Laws. A comparison of the prosecutions of violations by this body with that of the prosecutions by regular salaried game protectors is worthy of note.

In 1921 salaried officers of the department prosecuted 1,797 cases, including 233 violations of the fish law. Special deputy game protectors employed by the department prosecuted 417 cases. Special deputy game protectors receiving half of the penalty collected prosecuted 344 cases. The state police prosecuted 113 cases. Other peace officers, including sheriffs, deputy sheriffs, constables, and so forth, prosecuted 173.

Mr. Gordon speaks very highly of the state police in Pennsylvania, but states emphatically that they are not in a position to enforce the Conservation Laws for many reasons.

This year, 1922, the Commission has liberated the following game:

Deer.....	107
Wild turkeys	70
Ring-necked pheasants.....	2,684
Bob-white quail.....	14,602
Varying hares.....	3,000
Cottontail rabbits.....	19,088

This feature of the work they contend is infinitesimal as compared with the amount of game saved and cared for in their refuges.

Mr. Holland's conclusions are as follows:

The game laws should be recodified. In their present form they are unwieldy and very hard for the layman to understand. Without changing it in any way, except hereinafter mentioned, it should be gone over and put into better shape. Mr. Gordon and Mr. McCaleb told him some work has already been done toward this end.

He believes that the Minnesota system of making it mandatory that the gunner report game killed, should be adopted in Pennsylvania in preference to their present system of leaving it to his personal wishes in the matter. Mr. McCaleb and Mr. Gordon feel that their sportsmen are not as yet ready for this departure, and that it might create so much opposition as to react against

the Department. They know their gunners better than I do, but I doubt this belief. A few lines of explanation on their license, explaining to them that this data was gathered for their own good and that the department must have it to intelligently serve them, should convince any intelligent man of the worth of such a system.

At the present time they allow some of their special wardens who serve without compensation one-half of the fines on all convictions secured by them. This is bad, and should be done away with. It always creates dissatisfaction among gunners. A feeling that the officer making an arrest is going to profit thereby directly, is very apt to work against game protection. We are informed that the new code will remedy this defect.

By all means, this Department should receive more funds to carry on the splendid work they are doing, otherwise their activities in purchasing land will be very limited. I would suggest an increase in their licenses from \$1.00 to \$1.50, and possibly also the establishment of a separate trapping license, although I am not so sure about this latter, as they make such a big feature of vermin extermination, most of which is done by trappers. Many states have increased their hunting licenses, and this is possibly the best way to get the funds needed, as Pennsylvania has about 500,000 gunners, aside from land-owners who hunt on their own land without a license.

You perhaps know that I am opposed to the Commission form of government in game matters. My reasons are that I have seen so many failures from this plan. Usually none of these commissioners appointed take any active interest in the work. Occasionally one man does it all. Pennsylvania is the exception that proves the rule. Personally, I think it would be a calamity if any other plan was adopted. . . The sportsmen are satisfied, and their present plans and policies have made Pennsylvania one of the greatest game states in the Union, from a state that was practically shot out when they took hold of it. I attribute this to the fact that they have had high-class men interested in the work continuously for twenty-five years, who are willing and able to give both their time and their money to the cause. When a new man was appointed in place of considering it an honorary appointment, he took the example set by such men as Dr. Charles B. Penrose, John Phillips and William B. McCaleb and buckled down to work.

These men pay their own railroad and hotel expenses in attending meetings, and each year they spend a certain amount of time with the secretary, Mr. Gordon, in going over the state with him, all at their own expense. Mr. Gordon says that since he has been secretary of the Board, he does not believe a meeting has been held with an attendance of less than five of the six members of the Board present. Formerly, they held two meetings a year. Of late they have been meeting quarterly. I consider it a most remarkable record, showing that these men sacrifice their own personal and business interests for that of the sportsmen of the state.

Pennsylvania's Board of Game Commissioners is not a supervisory Board. They are a governing Board; they are the executive head of the department. Mr. Gordon, the secretary and the only salaried officer, carries out the work.

I found strong sentiment against the consolidation of the fish and game departments from both the sportsmen and the Game Commission. The latter feel that they would be shouldering a burden by taking on the fish department, which has never paid its way. This feeling is reflected to the Commission, I am sure, by the gunners who apparently are dissatisfied with fishing conditions, due mostly to pollution.

I think still more would be done if the Pollution Law could be made much more stringent, and then given to the Board of Health to enforce. Judges, as well as public sentiment, will support the action of a Board of Health much further than they will a Fish and Game Department. Possibly the European

system might be established, limiting the percentage of pollution (depending on the amount injurious to fish life) of different forms of acids and waste matter, by which plan a conviction becomes simple.

Perhaps the biggest stir among the sportsmen in the state at the present time is the belief that the new administration may abolish the special fund now existing for all money received and expended by the Board of Game Commissioners. The demand for a budget system, which seems almost universal over the country, may do this thing in Pennsylvania. I sincerely hope that it will not, for, regardless of whether it would prove possible to secure the full amount back in appropriations, such action is going to create much dissatisfaction and distrust among the sportsmen.

The next biggest stir seems to be a fear that the departments will be combined and either now or later get into politics, which has "shot things to pieces" in New York and elsewhere.

At the present time the Board of Game Commissioners has two funds, one for the purchasing of lands, and the other for running the department. This money could just as well all be placed in a single fund, as they now have the power without supervision to transfer from one fund to another, and Mr. McCaleb tells me from now on they contemplate only having the single fund.

I have given this matter a good deal of thought and study, and I conscientiously say I can offer no further suggestions for the betterment of the lot of the outdoor man in the Commonwealth of Pennsylvania. I consider that state foremost at the present time among the different states which rank at the top in game matters, and I dread to think of tampering with a machine that time has proved to be very nearly perfect.

As I understand it, the Game Department has been self-supporting since the passage of the license law. Since that time they have never received a cent by direct appropriation.

My own summary of the Pennsylvania game situation is as follows:

Question 1—Is it important for a state like Pennsylvania, with vast tracts of wild and semi-wild land, to conserve and develop her game resources for the people of the state?

I feel that the above question can be answered emphatically in the affirmative. I believe every good citizen should subscribe to the principles enunciated in the New York state conservationists' creed: "That in a great democracy of free peoples the protection of wild life and the preservation of all other natural resources, which underlie national prosperity and happiness, must depend finally, as does the stability of the government itself, upon the support and willing service of every citizen."

My own creed goes a step beyond this. I believe that a man is a better man if he longs to go afield with rod and gun and dog, and the camera should be included; and that the realization of that longing brings him into close contact with the best, the most uplifting things in life. This is the best form of recreation. The ultimate goal of nearly every true sportsman is to become almost

unconsciously not only a lover of all nature, but an amateur field naturalist.

The real sportsmen of America are our best citizens—clean of mind and body, resourceful, strong and courageous. The sportsmen of the allied countries rid the world of imperialistic militarism, and the sportsmen of the civilized nations today stand as a solid bulwark against all forms of impractical and destructive radicalism. The love of nature—of clean, vigorous sport in the open—is the antidote to the softening, weakening influences of modern civilization. Our battle then is to recover the lost heritage which our ancestors wasted and failed to protect, and having regained it to protect it for our children and our children's children.

This is a many sided and a far-reaching question. It is nothing short of restoring the balance of nature interrupted by the growth of large towns and cities. Much progress has already been made toward this end, but the real progress has been made only in the last generation and a half, most of it in the last ten years and by a handful of devoted, self-sacrificing men to whom posterity will owe much. Reasonable success is now assured; the wild life can and will be saved. The best type of American citizen will persist and, with him, man's most wholesome companions, animate and inanimate—the dog, the gun and the rod.

A skeleton outline of these principles and practices which have thus far stood the test of time and been adopted would include the following:

No public shooting can be maintained without thoroughly protected refuges.

Pair wardens are the only effective wardens. They must be kept in service throughout the year and promoted on the merit system to develop an esprit de corps in the state and Federal Government organizations.

Violations must be punished to develop a respect for the law, and, to apprehend the violators, a trained, skillful secret-service force is necessary.

The winter feeding of game and the control of vermin are important factors.

Questions 2 and 3. Has the Board of Game Commissioners been administering their department wisely and economically? And—Is the present organization, consisting of two separate commissions, one

for game and one for fish and each commission composed of several members, the most efficient that can be devised?

I am in thorough accord with the conclusions reached by Mr. Holland on these questions. Unquestionably in the great majority of cases a single-headed commission is more effective. The work of a Game Commissioner is distinctly a state function not a county function. The use of county lines which so often give rise to jealousies and disagreeable rivalries should be avoided as much as possible except as noted for the convenience of geographical description. The present commission is unquestionably made up of men of the highest character with a singleness of purpose and devotion to the best interests of the state seldom found in a commission composed of volunteers.

The success of the work in Pennsylvania has been due very largely to a continuing constructive program which has been rigidly adhered to for nearly 25 years under the leadership of three or four men of high purpose, striking personality and the highest integrity, and I am at a loss to suggest any improvements upon the method of administration as it now exists in Pennsylvania so long as men of this calibre can be found. Although I would not think of recommending the present organization at the outset, I believe that even Pennsylvania should gradually work towards a commission of three or a single game commissioner. Sportsmen feel that one man can often be controlled by politicians.

In most states the fish and game matters are administered by a single commissioner, but I see no good reason for consolidating the fish and game commissions in Pennsylvania in the immediate future. There may be good reasons for keeping them separate indefinitely, although such reasons do not appear to me at the present time. New York State and Louisiana have each a single conservation commissioner in charge of the conservation and development of all of the state's natural resources and these resources are separated into departments with a single commissioner or director over each department: fish, game, forests, parks, water power, mineral, oil, etc. Massachusetts has a commissioner of conservation who is chosen as a kind of chairman from the departmental commissioners of forest, fish and game, who presides over the joint meetings of the departmental commissioners and in this way ensures the closest co-operation between these depart-

ments of the state which are closely allied, such as: Forests, parks, fish, game, water power, including pollution of streams, and minerals including oil and gas.

New Mexico has recently adopted a plan for the organization of her conservation work which has many admirable features. I attach copy of this plan for your perusal.

The Massachusetts plan of keeping the forest, fish and game interests in close contact seems to work well but I cannot conscientiously recommend or even suggest any abrupt changes in the Pennsylvania situation because of the excellence of the results now being obtained by both the fish and game departments.

Conclusion: From the statistics collected by Mr. Holland, we learned that the value of fur taken in Pennsylvania during 1921 amounted to approximately \$2,500,000. Mr. John Phillips' estimate of the value of the game killed is \$5,514,000. Mr. Holland's figure is \$5,000,000, Taking the lower figure as the safer, we have a yield of \$7,500,000 as the purely monetary value of this state resource. This figure takes no account of the enormously valuable by-product to the state in the health and happiness of its citizens which comes from the enjoyment of legitimate out-of-door sport. The appreciation of the beauties of nature is taught in the public schools and by various educational campaigns and with the added delights of the chase, which can be found in Pennsylvania, the ethical and moral values must prove the surest antidotes to all forms of radicalism. The cost to the state for securing and maintaining an annual output worth approximately seven and a half million dollars was in—

	1920	1921
General Activities.....	\$411,496.70	\$527,588.40
Bounty System.....	132,572.72	137,763.51
	<hr/> \$544,069.42	<hr/> \$665,351.91

This money has been raised for several years by an excise tax in the form of a hunting license so that those who are directly benefited pay the cost. We see from these figures that economically this department meets every test. The gross yield from it is more than ten times the cost, and the gross yield of \$7,500,000 less the 1921 cost of \$665,352 shows a net return of \$6,834,648

which is 6 percent on \$112,000,000. Which is a fair estimate of the capital value of this resource to the state of Pennsylvania.

I am attaching to this report the report of Mr. John W. Titcomb which I believe can be depended upon as accurate in substance and sound in conclusions and I, therefore, embody it as a part of my own report which is supposed to comprise the departments of Game and Fish.

An Inquiry Into the Department of Fisheries of the Commonwealth of Pennsylvania.

By JOHN W. TITCOMB

Superintendent of Connecticut State Board of Fisheries and Game
and Consulting Fish Culturist

The object of this inquiry was to ascertain whether the Department is producing results commensurate with the funds being expended.

For a number of years Pennsylvania has been prominent as a progressive leader in conservation work. In this respect the efficiency of the Department of Fisheries is no exception, and has been recognized by the officials of various states who have charge of similar work, and who annually meet in convention to discuss their problems and compare notes.

It is therefore a source of great satisfaction to be able to confirm by personal inquiry the favorable impression that has prevailed beyond the borders of the state.

It is with no little embarrassment that the report is submitted for fear that the motives which have inspired favorable comment upon the conditions in the Department, and the praise which has been accorded to the present incumbent of the office of Commissioner may be misconstrued.

If too much space has been devoted to argument against any change in the Department, or to a commendation of the accomplishments of the present administration, it has been influenced by a knowledge that the report is to be published, and with the hope that it will reach the appointing powers of other states; that it will impress upon them the importance of securing men of practical knowledge and experience to fill technical positions, and that the lack of such qualifications may result not only in a waste of public funds, but a tendency on the part of the public to be skeptical as to the importance of conservation efforts in general.

In gathering the material for this report, every possible facility was placed at my disposal; employees in the office and superintendents at hatcheries were directed by the commissioner to furnish without reserve all possible information and records, and to freely and fully answer all questions. Their ready response materially expedited the inquiry.

Office System and Salaries.

The administration of the office of the Commissioner of Fisheries involves so many details that it is impossible to do it justice in the short time permitted for this inquiry. There is a very complete system of accounting. One can at a moment's notice obtain by months the details of expenditures at each hatchery, and in fact in each branch of the service. The records of expenditures are well classified, showing the great variety of purposes for which frequent disbursements are necessary, thus facilitating proper supervision and curtailment of operations. Detailed accounts of expenditures in the field or warden service and in the operation of the office are obtained with equal celerity.

From the offices of the Commissioner permits are issued for angling licenses, both resident and non-resident, and for fishing with various kinds of nets, eel traps, outlines, spears, etc. The amount of detail work is so enormous that it is surprising to find it so well handled by the number of employees on the regular office staff.

The salaries of office employees holding positions of responsibility are low, and especially so if the term of service and experience are taken into consideration.

At the hatcheries the compensation of superintendents probably exceeds that of any other state, but it is none too much for the responsibilities involved.

The regular employees occupying subordinate positions at the hatcheries are paid about the same as in other states, or a trifle better.

A familiarity with their duties is necessary to the intelligent discussion of salaries of hatchery employees. It is impossible to successfully operate a fish hatchery, either in the distribution of fish or in the collection of fish eggs, with any prescribed limit as to the hours of service. They render service nine hours per day regularly on weekdays, and one half of all Sundays and holidays. During periods of the year when distributions are made, they are subject to call for duty at very early hours in the morning, and frequently are on duty until late hours in the evening. Messengers often travel with fish all night, and are on the road from early Monday morning until late Saturday night.

The activities at a hatchery call for a type of employee who is able and willing to do all kinds of work. It may be digging ditches or running a pipe line; it may call for plumbing, carpenter work or mixing concrete. As the hatcheries are usually isolated from a settlement where specialists along these lines can be easily obtained, the economy of having men of all-around ability is obvious. Above all other things a hatchery needs men who love fish cultural work and who perform their duties because they love it.

The superintendents, being responsible for a large amount of valuable live stock, are practically on duty for twenty-four hours per day and for every day in the year. It is economy to have men well paid and satisfied and thus be able to keep a force of trained employees, rather than to be obliged to make frequent changes because of low wages.

The Commissioner, with the approval of the Governor, is empowered to adjust the rate of compensation of all employees subordinate to him. His salary is fixed by the Legislature. Taking into consideration the great responsibilities of the office, from which he is never free and his long term of service, it appears to the writer that the Commissioner's salary is inadequate.

If there is a weak link in the chain as to the administration of the office of Commissioner of Fisheries, it is because there is no administrative officer under him who has the practical knowledge which he has, and thus the ability to act as his deputy and relieve him to some extent of the administrative duties of the office, or who can carry on for a period in case of his illness. In case of his death, there is no administrative officer trained in the practical work to succeed him. This is not intended as any reflection upon the present office force, which is most efficient. The chief clerk thoroughly understands the office details and is very efficient in the performance of his duties, for which he is inadequately compensated. The bookkeeper has more responsibilities than implied by his title.

Fish Culture.

The Department has six hatcheries which are located as follows:

- Wayne County Hatchery, Pleasant Mount, Wayne County
- Bellefonte Hatchery, Bellefonte, Center County
- Erie Hatchery, Erie, Erie County
- Corry Hatchery, Corry, Erie County
- Union City Hatchery, Union City, Erie County
- Torresdale Hatchery, Holmesburg, Philadelphia County.

At five of these hatcheries are buildings of permanent construction, practically fire-proof, well planned and equipped for the particular kind of fish cultural work expected of them. The pond systems connected with hatcheries that have ponds are well arranged and of concrete construction.

The hatchery at Union City is an exception, very few permanent improvements having been made, for the reason that it is dependent for its source of water supply upon the overflow from the municipal water supply to Union City. The city is driving wells and contemplates making changes which will assure a permanent and adequate supply of water to this hatchery. It is the only plant in the western part of the state suitable to the production of warm water fishes. The Commissioner informs me that he has delayed making any unnecessary expenditures for improvements to this plant until a permanent water supply is assured.

The output of fish of various species from each hatchery during the past three years will be found in tables which follow. Besides the actual production of fish, as shown in these tables, credit should be given to the Pleasant Mount, Corry and Torresdale hatcheries for the incubation of surplus white fish and cisco eggs, which are eventually hatched and placed to the credit of the Erie hatchery. In the collection of eggs from fish caught in nets on Lake Erie and often taken aboard vessels during very rough weather and hastily manipulated, it is impossible to impregnate as large a percentage as under the more favorable conditions which prevail with other species. There may be a very much larger percentage of green eggs taken than can be incubated with the equipment at the Erie hatchery. The surplus eggs which cannot be cleaned up at the Erie hatchery are therefore distributed to the other hatcheries above mentioned, and by the time that they have become eyed and the unimpregnated eggs removed, the Erie hatchery will also have cleaned up the unimpregnated eggs, making available space to which the eyed eggs from the other hatcheries can be returned and hatched, convenient for distribution in the lake to which they are destined.

Inasmuch as the states of New York and Ohio and the United States Bureau of Fisheries are all of them collecting eggs of the commercial species on Lake Erie and that there is a limit to the supply, the hatchery at Erie probably is of sufficient capacity to meet all future demands upon it for the propagation of the species for which it was established and equipped. The building is of substantial permanent construction, well planned, and the interior of it has been made most attractive. In reference to all of those features it will bear favorable comparison with any state or Federal hatchery of its type in the United States.

In the development of the hatcheries for producing fish for the inland waters of the state the results show well planned buildings and ponds of a high type of permanent construction creditable to the state and surpassed in rank by those of no other state. The hatcheries are really in a higher class and more productive than those producing similar species in other states, with perhaps the exception of New Jersey, which has one large central fish cultural plant for the entire state; something which would not be expedient in a state of the size of Pennsylvania, and would not be possible in most states for the reason that the unusual volume of water supply at the New Jersey hatchery is larger than can usually be found in other states. In actual figures the total production of fish may be excelled by some state which distributes fry or fish of small size.

These developments have all been accomplished within eleven years covering the administration of the present Commissioner.

Species of the common food fishes which the ordinary angler can easily catch and utilize on the table are propagated on an extensive scale in addition to the game fishes to which earlier efforts were more particularly directed.

Importance of the Fishery Industry and the Intrinsic Value of the Fish Caught by the Angler.

The following table shows the catch of fish out of the port of Erie from December 1, 1920, to November 30, 1921, as reported to the Department by the fish houses at Erie:

KIND OF FISH	Pounds	Value
Cisco or Lake Herring.....	8,569,964	\$390,711.37
Blue Pike.....	2,741,420	97,530.68
Yellow Perch.....	70,311	3,325.71
White Fish.....	490,208	79,711.29
Lake Trout.....	2,536	405.45
Pike Perch.....	5,679	915.25
Catfish.....	277	40.15
Carp.....	992	26.85
Sturgeon.....		
Miscellaneous.....	68,996	2,013.21
TOTAL.....	11,950,383	\$574,679.96

In addition to the fisheries of Lake Erie, the following table shows the amount and value of fish caught on special devices, permits for the use of which to the number of 46,583 were issued for the year 1920:

KIND OF FISH	Pounds	Value
Eels.....	186,412	\$35,681.89
Suckers.....	108,533	18,415.95
Mulletts.....	29,789	5,349.42
Carp.....	58,590	9,868.41
Catfish.....	41,700	8,081.45
TOTAL.....	425,024	\$77,397.12

The combined total value of commercial fishes of Lake Erie and inland waters is \$652,077.08. It is impossible to obtain statistics as to the value of fish caught by the angler. Setting aside the recreational value of fish taken with hook and line, there is an intrinsic value of fish thus caught, which seldom has proper consideration. When the angler brings to his home a creel of fish, regardless of species and regardless of the pleasure afforded in catching them, he is supplying his table with a delicacy more desirable than the same number of fish purchased at a market, because they are strictly fresh and they have the same intrinsic value on the table as do the meats, or other substantial dishes which they replace.

From statistics obtained on a much smaller area, it is believed that it is a conservative statement to say that the intrinsic value of fish taken by hook and line in Pennsylvania is almost equal in value to that of the commercial fishes given in the above tables. This intrinsic value of food and game fishes caught by the angler must not be overlooked in connection with the expenditure of funds for the propagation of fish to stock the inland waters of the state.

The above figures covering the combined total value of commercial fishes represents the price paid to the men who catch the fish. If the value of these fish should be based upon the price paid by the householder, it would be necessary to multiply these figures several times, and amount to more than \$2,000,000. However, a discussion of the high cost of fish to the consumer is not pertinent to this report.

Limitations in the Production of Black Bass.

In almost every state anglers are crying for black bass far beyond the ability to supply them, particularly the smallmouth species. Unfortunately, they cannot be propagated artificially because the basses will not submit to the manipulation of the fish culturist for the taking and fertilization of their eggs. For this reason, in order to obtain bass for distribution, it is customary to construct comparatively small ponds which are entirely under the control of the fish culturist and can be drawn at will in which adult bass are placed and allowed to spawn naturally. Fortunately, there is a high percentage of fertilization in the spawning function of these species. Unfortunately, the young are very cannibalistic and it is difficult to produce fingerling bass for the reason that if a large number of fry are left in ponds such as fish culturists customarily use for this purpose, they will reduce their own numbers about 60 percent in six or eight weeks, at the end of which period the survivors will have attained a length of one and one-half to three inches. During the period of about twenty-five days, after the young have emerged from their nests, they feed upon microscopic animal life found on algae and other vegetation, but after that period they feed upon each other to a large extent, unless scattered in larger waters. Furthermore, the distribution of bass as fry has been attended by very unsatisfactory results. Pond cultural operations of this type are therefore very expensive. The breeding of other warm water fishes must be done in ponds, and it has been found that it is best to permit the fish to reproduce naturally.

Fingerlings and Yearlings vs. Fry.

The policy of distributing fingerlings and yearlings as compared with fry has been thoroughly tested. In the early days when the waters were nearly all virgin waters surrounded by forests at their source, the distribution of fry undoubtedly had a beneficial effect, if properly planted, but experience has demonstrated that under present conditions, far better results are obtained by rearing the fish to fingerlings or yearlings, and under present day conditions, the people want and demand the larger fish. Trout are not distributed until they are at least three inches long when distribution begins, and the distributions continue over a considerable period, at the close of which the larger fish are called yearlings or two-year olds when they have attained a size of seven to eight inches; but the rearing of trout to fingerlings and yearlings is quite expensive. It not only requires the employment of more labor, care and feeding of the fish, but the food bill is a large item. By way of illustration, let me explain, that in the earlier days when fry and small fish were distributed it was possible to carry in one transportation can, fry to the number of four or five thousand, and small fingerlings to the number of one thousand to three hundred, according to their size. The five thousand fry which could be transported in one ten-gallon can require fifty cans to transport them when they are three or four inches long, and when the same number of fish attain a size of eight inches they require two hundred cans in which to transport them. In the olden days it was possible for a messenger to carry from 75,000 to 100,000 fry in one baggage car trip of twenty cans of fish. To transport the same number of fish when four inches long requires three trips for a messenger of twenty cans each, and when eight inches long requires ten trips of the messenger to dispose of them.

Perhaps one of the greatest advantages of fingerlings and yearlings is the fact that, if carelessly planted, there is less liability of loss before the fish become wonted to strange surroundings and feeding grounds.

Reservoirs as a Substitute for Small Ponds in the Propagation of the Basses and Other Warm Water Fishes.

Adjacent to the Wayne Hatchery at Pleasant Mount there are five reservoirs, each having an estimated area of about two hundred acres, which were formerly used by the Delaware & Hudson Canal Company as a source of water supply for the canals. These reservoirs having fallen into disuse, were purchased by the Department for pond cultural operations at a cost of \$25,000. To replace this very valuable acquisition to the pond cultural facilities of the Department would involve an expenditure of perhaps \$500,000.

Some improvements have been and are being made to the outlets in order to make them more serviceable for fish cultural operations, the cost of making these repairs being merely nominal in comparison to the purchase price and to the value of the property after the improvements have all been completed.

Reference has been made to the limitations in the propagation of the basses. Under the usual pond cultural methods, it is impossible to maintain the brood fish in the small ponds used for the young during the summer months. These reservoirs afford an opportunity to maintain large quantities of the several species of warm water fishes propagated by the Department and afford special facilities for maintaining the adult large and smallmouth black bass. One of the reservoirs appears to be especially adapted to the propagation of the smallmouth black bass, and the Commissioner is planning to make the necessary changes at the outlet and devote this pond especially to the culture of this much sought for species. The acquisition of these reservoirs at so small an outlay is a most unusual and valuable one, the benefits of which will be more and more appreciated as funds become available for their development.

The reservoirs not only are of great value for the production of food and game fishes for the inland waters, but afford a source of supply for bushels of yellow perch eggs which are hatched and to a large extent distributed in Lake Erie, and it is much less expensive to secure the eggs from reservoirs adjacent to a hatchery than to attempt to collect them from the waters of Lake Erie.

Selection of Species and the Distribution and Planting of Fish.

Fish for stocking waters open to the public are furnished free of expense to all applicants delivered at the railroad station nearest to the point of deposit, or to some place mutually agreed upon by the Department and the applicant. The applicant's preference as to species is complied with, if the waters described by him appear to be well suited for them; otherwise the Commissioner determines what species will produce the most satisfactory results, and guards against the introduction of undesirable species. For illustration, the brown trout are well suited to certain trout waters, which during the summer months reach rather a higher temperature than formerly, and in such waters the new species may thrive better than the native trout, but it is contrary to the policy of the Department to place the new species in waters which are well adapted to the native trout because they are so destructive to the latter.

It is the tendency of the people to want something new, and it is an easy matter to work permanent injury to a stream or lake by yielding to this tendency and by the introduction of some species foreign to the water. The new species, while very desirable in itself, may prove a competitor in new waters by destroying the valuable fish which are there without compensating for the havoc wrought. In this respect the Department has a permanent stocking policy, which must be strictly adhered to regardless of individual criticisms.

In addition to the fish furnished for strictly public waters, the Department furnishes, under a wise provision of the law, catfish and bluegill sunfish for the farm fish pond. Most of the fish for inland waters are planted by filling applications, but the Commissioner may distribute and plant fish without an application therefor.

For the intelligent handling of applications for fish, from the time the applicant makes the request until he receives the fish at the destination agreed upon, various forms are used and very complete records are kept. When the applicant receives notice to meet the fish, he is provided with an acknowledgment receipt which is forwarded to the Department, showing the number of cans received, and the condition of the fish upon arrival.

In the distribution and planting of fish through applicants, there is one weak link in the chain, in that it is not possible to rely upon the applicant to follow the very complete instructions as to method of planting.

For the Department to attempt to plant all of the fish distributed would involve so large an expense as to be practically prohibitive. When a messenger receives twenty to thirty cans of fish he goes over a route distributing them to a number of applicants who usually receive them at several railroad stations. If the Department undertook to plant these fish, instead of one messenger with the twenty or thirty cans, it would require as many messengers as there are applicants to be supplied, or as there are waters to be stocked on any one trip. Then there would be the additional expense of transportation from railroad destination to the waters.

This weak link in the chain, which is experienced by officials in all states having to do with this kind of work, is overcome, so far as possible, by impressing upon the applicants as frequently as possible the importance of following the instructions. Other than constant propaganda along this line there seems to be no remedy for this situation, which is the occasion for criticism in other states, and presumably so in Pennsylvania.

Are the Hatcheries Producing Results?

In the consideration of this subject one must review the conditions existing today as compared to those of twenty-five or thirty years ago. In the olden days anglers reached the fishing waters by the use of horse-drawn vehicles. By leaving at midnight or very early in the morning they could reach fishing waters over rough roads by a long, tedious journey, enjoy fishing for a portion of the day and return the same day. Today nearly all the streams are accessible over a good state highway, and the automobile makes it possible to reach them in a comparatively short time. Anglers can accomplish in an hour the distance required to reach fishing waters, which formerly required practically a half day. Many of the state highways follow the courses of good trout fishing waters. The number of anglers is multiplied and the demands made upon these streams are almost beyond the producing capacities of the waters. It must be borne in mind that waters have their limitations in the production of fish, and no matter how liberally they are stocked, some of them are fished so hard that no one angler can be sure of securing a full creel.

The producing capacity of any one body of water has its limitations, just as the producing capacity of the garden is limited, even under the most intensive cultivation and rotation of crops. Some waters are more productive than others, just as some soils are more productive than others. It is no more possible to produce in some waters more than a given number of adult fish than it is possible to maintain in a pasture of given area more than a certain number of cattle or sheep. It is purely a live stock proposition.

I am not arguing that the streams of Pennsylvania today are stocked to their fullest capacity, although it is possible that some of them may be. I feel that

the present propagating facilities are being worked to their capacity and that the anglers are reaping the full benefits of their capacity production.

With more funds made available by the angler's licenses, more hatcheries or stations for rearing fingerlings and yearlings can be established and are needed.

The extent of fish cultural work is only limited by the amount of funds available for operating the hatcheries.

The commercial value* of the various species of trout produced by the Department at the various hatcheries, based upon quotations from commercial trout dealers, far exceeds the entire cost of operating the hatcheries plus the cost of distributing all species produced by them.

The Angler's License Law.

While perhaps not relevant to this inquiry, I cannot refrain from discussing the present law which provides for the licensing of all anglers twenty-one years of age or over.

In most states having license laws, provision is made to include all persons sixteen years of age or over. A large percentage of the anglers come within the sixteen to twenty-one years age limit. There appears to be no reason why these young men should not contribute towards the support of the fish hatcheries and work for which the license money is used.

The angler's license is not only a revenue producer, but it is of tremendous assistance in the enforcement of the protective laws. If the young man from sixteen to twenty-one is fined for violation of the fish laws, in most instances his parents pay the fine, and he is not subjected to any severe punishment. If, however, he is required to secure an angling license in order to enjoy fishing privileges, and then violates the fish law, the revocation of the license is a real punishment and more effective as a deterrent to law violations than is the provision for a fine. It is believed that if the Legislature in its wisdom permits the revenue derived from this special tax of the angler to be devoted specifically to the propagation and protection of fish, little opposition will come from the young people who contribute license fees in anticipation of the pleasure and profit to be derived from the beneficial effects of their use.

Law Enforcement and the Warden System.

It devolves upon the Commissioner to enforce the laws relating to the protection of fish, including the laws relating to the pollution of streams when to such an extent as to kill fish.

He is authorized to employ wardens to the number of sixty-five. Owing to lack of adequate funds he has actually employed only nine wardens until a few months ago when six additional wardens were provided for by revenue from the angler's license fund. Obviously it is impossible with this number of wardens to enforce an observance of the fish laws throughout the sixty-seven counties, and the Commissioner informs me that these wardens devote their time largely to pollution problems.

In addition to the fish wardens, both forest wardens and game wardens have authority to enforce the fish laws, and also the State Police. The most cordial relations exist between the fish wardens and the law enforcement officers representing the other three branches of state service, the Departments having received material assistance from all of them.

*The commercial value of the trout was obtained by using the quotations of commercial dealers on brook trout and doubling the price for brown trout, the latter not being obtainable by purchase, making it necessary to maintain brood fish in ponds. It was not possible to obtain the exact size of all fish distributed, but it is estimated that one-half of them would average four inches in length and one-half of them six inches. If the values are over-estimated the results are very favorable even if the figures are cut in half.

Through this co-operation efforts are made to enforce observance of all the laws relating to fish, except that one which has to do with the maintenance and establishment of fishways.

No practical fishway has been devised and successfully operated for the species of fish frequenting the streams of Pennsylvania, and the writer endorses the Commissioner's attitude in reference to the manner in which he handles fishway problems.

Special mention is made of this exception to the enforcement of the laws for the reason that well-meaning persons who do not understand the situation may complain because efforts have not been taken to strictly enforce the law, and complaints may also come from inventors of fishways, who wish to have the state exploit their devices, before they have proven to be efficient.

The Pollution Problem.

It devolves upon the Department of Fisheries to enforce a law which prohibits the discharge into the waters of any substances deleterious, destructive or poisonous to fish, unless it be shown to the satisfaction of the Commissioner, or to the proper court, that every reasonable and practicable means has been used to abate and prevent the pollution of waters in question. The penalty for violating this section is one hundred dollars. It is less expensive for some industrial corporations to discharge their effluent into a stream and then pay the fine.

The records of pollution cases in the office of the Commissioner are very complete and show careful attention and commendable energy in an effort to enforce an inadequate law. The law, though inadequate, is apparently effective to a certain extent, and in some instances acts as a deterrent to pollutions destructive to fish. The Department furnishes plans for a set of filters to be used in connection with the discharge of industrial wastes which were patented by the present Commissioner, at his personal expense, and presented to the Commonwealth. It furnishes to individuals and corporations plans for purifying some of the wastes free of cost.

To begin with, it is difficult to prove to a jury that the discharge from some industrial plant is really destructive to fish. The evils of pollution are cumulative, and the toxic effect may not be visible at the effluent. The process in destroying fish or driving them out of a stream may be so gradual as not to be noticed until the waters are barren, and then it is useless to prosecute the corporation for polluting a stream for the reason that it contains no fish.

The problem is one which should interest every citizen in the United States, but each state must do its part in an attempt to solve it. One of the greatest crimes of the age is the manner in which sanitary sewage is disposed of. The soil of the farms is drained of its fertility in producing food for the city populations. After this food has performed its life-sustaining function, it is not returned to refertilize the soil, but is wasted in the streams and the farmer is obliged to resort to chemical fertilizers.

There is no law to prohibit the discharge of municipal sanitary wastes into the waters of the Commonwealth, and yet if discharged in sufficient quantities the effects, while not immediately destructive to fish, have the effect of depopulating streams. Mixed with the sanitary sewage of large populations, it often happens that quantities of industrial wastes very destructive to fish life are discharged into the city sewers, and thus the law does not reach the industries which discharge their wastes mixed with the sewage.

The Department of Health is not interested in the subject, except as to the effects upon pollution of potable waters and the health of the people. The Water Supply Commission is interested merely in so far as the culm and material of that kind washes into the streams and effects their flow by filling up the channels.

Under the existing pollution law the Commissioner is liable to be criticized if he attempts to strictly enforce it, and he is also subject to criticism by well-meaning people if he finds occasions where it is inexpedient and possibly impractical to enforce it.

It would be inadvisable to enact a law which would strictly prohibit the discharge of industrial waste and sewage into the streams, because such a law, if enforced, would necessitate the discontinuance of many industries.

Obviously it is unwise to spend money in the propagation of fish to stock waters which are polluted, or may be polluted, after they have been restocked. There should be sufficient law to prevent the establishment of industries upon streams not now polluted, without assurance that such industries know how to take care of any wastes destructive to fish life, and power to compel them to do so.

There should be a Commission or Department of Pollution to conduct investigations in an effort to solve pollutorial problems. At the present time there is no known method for taking care of some forms of pollution, except at a prohibitive expense. The proposed Department should be empowered to employ experts along various lines, and should be a permanent branch of the state service, because the solution of these problems cannot be reached in the immediate future. It should be empowered to act in co-operation and collaboration with similar Departments in other states.

But little is known of the reactions of fishes to the changed environment of the modern stream, dammed and polluted as it has come to be.

Possibly a real step in advance would be accomplished if the problem were attacked from the standpoint of the physiologist.

In that case the proper slant would be given to the researches if a physiologist were made director of the work.

For other members of the personnel, it is suggested that a water analyst with experience in bacteriology may be easier to get than a chemist with experience in bacteriology and possibly more generally useful.

The aquatic biologist cannot possibly be spared and a sanitary engineer should be assigned to give information on the hydraulics of the stream.

The "bigness" of the problem from an economic as well as scientific aspect is almost beyond conception.

Consolidation of Departments.

The consolidation of fish and game, and possibly forests, into a single-headed Conservation Commission, or something of that nature, has often been considered in various states, has been successfully tried in some instances and failed in others. Therefore it seems pertinent to this inquiry to express my views.

In comparatively small states, fish and game, and possibly forestry, go well together in one Department, but in a state of the size and importance of Pennsylvania, with fish and game in two well organized Departments, any change tending towards consolidation seems inadvisable.

Budget System.

The budget system appears to be the approved method of handling appropriations in progressive state governments, but for a special tax such as that of the license fees of the hunters and anglers, the several hundred thousand persons who pay the fees, want and naturally demand that the revenue derived from these fees be expended for the perpetuation and improvement of hunting and fishing and the conservation of wild life.

Importance and Economy of Practical Experience.

Progress in fish cultural work throughout the United States has been retarded through lack of appreciation of the importance of encouraging experienced fish culturists and the retention of such men in office; the use of their experience in the selection of sites for hatcheries and their guidance in the construction and equipment of such institutions.

In nearly every state there are hatcheries which have been located through political influence and as a result have proven to be failures, or have been maintained at an abnormal cost in proportion to the output of fish. Often the man who has had sufficient influence to secure the location of a hatchery has also had sufficient influence to secure successive appropriations of the people's money in an effort to find suitable water for it, or in an effort to overcome other obstacles to economical operation.

Few states today have as Commissioners men who have had a long and practical experience in the line of work over which they have supervision, and they must necessarily depend upon subordinates who have had little experience, except perhaps at one local hatchery, and who lack the broad vision which is necessary to economic planning of fish cultural operations. This condition in other states is due to frequent changes in the personnel of Commissioners, either through change of party in control, or through legislative reorganization of the Commission. No matter how able a man may be in other walks of life he cannot undertake the administration of a Fish Commission intelligently and direct the work in an efficient manner until he has acquired practical experience and knowledge of the work. Therefore, every time a change is made in a Commission, the tax payers must contribute towards the education of a new appointee and pay for his mistakes.

The favorable comment upon conditions in Pennsylvania is made possible by the fact that the Commissioner was selected primarily because of his practical knowledge and experience, and that no change has been made for eleven years. Previous to his appointment, the present Commissioner had served an apprenticeship in the hatcheries, working his way up from laborer to superintendent in charge of the construction and operating of hatcheries for a period of thirty-four years. In other words, he has devoted his entire life to the practical work connected with the duties of the office. He is competent to perform with his own hands the duties of a skilled fish culturist with the various classes of equipment required for handling the many species of fish propagated. When he visits a hatchery he therefore knows whether things are being conducted properly or not.

The man who has become familiar through long association with the conditions of each waterway is best fitted to determine what species of fish is best suited to it, and when it is economy to change to some other species.

In the expansion of fish cultural operations, which will naturally follow the increase in revenue as a result of the angler's license law, no man is probably better fitted to select the sites and properly test them before expending funds in permanent construction work, than is the present Commissioner. He should be allowed free rein in this class of work, and not be hampered by any outside influences in the selection of sites for fish cultural operations. In other words, the economic and productive features of prospective sites should be the ones which determine their location.

Too Much Nepotism?

Because my opinion was asked as to whether or not there are too many Bullers in the Department, I make this a subject in my report.

In the employ of the Department the Commissioner has two brothers and two sons; one of the brothers has been in the service for about fifty-three years,

and plans to retire on the first of January. The other brother was a successful fish culturist long before the present Commissioner was appointed. The Commissioner is, therefore, not responsible for the appointment of his two brothers. Formerly there were four brothers, including the present Commissioner, who occupied positions as hatchery superintendents. If they rendered good service would it be reasonable or in the interest of the service to expect one brother, when promoted to the rank of Commissioner, to discharge the other?

On general principles it would seem to be at least impolitic to appoint one's own sons to responsible positions in the public service, but knowing the difficulty of obtaining practical, efficient men who love the work, and that it would be very difficult to replace the Commissioner's two sons with men equally skilled and interested in fish cultural matters, there appears to be warrant for an exception to the rule.

The Policy of Pennsylvania as to Rentals for Public Offices.

The sub-committee on Public Buildings, and Grounds and Rentals appointed in September, 1922, have had a number of meetings and have given specific consideration to the statement of rentals paid by the state which you furnished in the latter part of October. Obviously, there has not been sufficient time for the sub-committee to give any consideration to the broad question of investment by the state in public buildings and grounds, and we are not at all sure that it was intended that we should do so. This report must, therefore, be restricted to a consideration of the rentals paid for the various offices as set forth in the statement furnished. We find that as a rule the rentals are substantially those paid by others for similar offices or space in the several communities. We express no opinion as to whether the amount of space leased is required or not, as that is unquestionably a matter of administration that can only be intelligently passed upon by the administrative head of the Department, and which will no doubt receive the attention of the incoming administration through the heads of Departments selected. As far as the members of the sub-committee have been able to judge the amount of space leased does not seem unreasonable, but in the absence of authority to make specific inquiries as to the nature of the occupancy and the use thereof, we can express no further opinion.

It is noticeable that the largest amount of space leased is in the City of Harrisburg, due, no doubt, to insufficient space in the buildings owned by the state to accommodate all of the Departments. We understand, however, that the state has a comprehensive plan under which one section will probably be ready for occupancy during the coming year, and a considerable amount of space in Harrisburg now occupied under yearly leases will be surrendered. There are one or two leases which were made for a period of 10 years which will be an obligation of the state for a number of years, but it is not beyond the time when further additions to the office building plans can be constructed. The rentals paid for

space in Harrisburg seem to be reasonable under present conditions, but your sub-committee is of the opinion that as a rule it is inadvisable for the state or any other Governmental agency to make large expenditures upon rented property.

The amount of space leased in the cities of Philadelphia and Pittsburgh and the rentals paid are as follows:

	<i>Rental</i>	<i>Sq. Ft.</i>	<i>Price per Sq. Ft.</i>
Pittsburgh.....	\$21,366	17,610	\$1.21
Philadelphia.....	26,920	22,758	1.18
Harrisburg.....	100,548	122,226	.82

Your sub-committee desires to suggest that if consideration should be given to the amount of space that the state is occupying in municipal and other buildings in those two large cities, it would be the part of wisdom to consider whether it would not be a correct economic policy for the state to own buildings in Pittsburgh and Philadelphia in which could be located all of the Departments which are now disadvantageously scattered throughout those cities. It is the view of your sub-committee that such buildings ought not to be of a monumental character, but rather of the type of those used for ordinary business purposes, and not necessarily located in the busiest portions of the city upon grounds of the greatest value; they need only be reasonably accessible to the public.

Respectfully submitted,

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